

# ***Excellence in Prevention*** – descriptions of the prevention programs and strategies with the greatest evidence of success

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## **Name of Program/Strategy: Project STAR/Midwestern Prevention Project**

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### **1. Overview and description**

The Midwestern Prevention Project (MPP) was a comprehensive, community-based, multifaceted program intended to prevent or reduce gateway substance use (alcohol, tobacco, and marijuana) during adolescence. The program strived to help youths recognize the tremendous social pressures to use drugs and to provide them with assertiveness skills to help refuse peer pressure and avoid drug use. MPP was designed to eliminate gateway substance use in middle school students, to reduce the risk of delinquency along the lifespan.

The program was targeted at youths in the transitory period from early adolescence to middle adolescence, as this age presents a high risk for gateway drug use. The program was intended for use in a school-based setting for middle school students, specifically, sixth and seventh graders.

MPP disseminated an antidrug message to students through a system of well-coordinated, communitywide strategies that involved various areas that influence a middle school student's life, including school, community, family, and mass media.

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***Excellence in Prevention*** is a project of Oregon Addiction and Mental Health Services and Washington Division of Behavioral Health and Recovery. Information is drawn from many sources, including the National Registry for Effective Prevention Programs (NREPP), sponsored by the Center for Substance Abuse Prevention.

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School. The central component for drug prevention programming is the school. The school component used active social learning techniques (modeling, role playing, and discussion, with student peer leaders assisting teachers). It was included in teachers' curricula for middle school students and included homework that requires participation from parents in assignments.

Community/policy. A consistent message supporting a non–drug use norm was delivered through community organization and training, as well as through changes in local health policy regarding tobacco, alcohol, and other drugs. This component entailed training community leaders and government officials to plan prevention goals and strategies for implementation.

Parent. The parent education and organization component involved a parent–principal committee that met to review school drug policy and parent–child communications training, and was designed to occur within the school and the school neighborhood. This component was intended to motivate parents to participate in the furtherance of program goals.

Mass media. The mass media component was intended to promote the program's antidrug message through various media, such as television, radio, and newspaper. Mass media programming was used to support the other components by introducing the program's concepts to the entire community.

These components were introduced to the community in sequence at a rate of one a year, with the mass media component occurring throughout all the years. All components involved regular meetings of respective deliverers (for example, community leaders for organization) to review and refine programs. Overall, the interrelated components were intended to promote a comprehensive curriculum that disseminated a zero-tolerance attitude toward substance use.

While the MPP was mainly school based, the program was designed to elicit participation from the community, schools, and family to promote a comprehensive approach to drug prevention. Therefore, proper implementation of the MPP curriculum required collaboration and effective communication between members from teachers, parents, principals, and student leaders.

The MPP used a preventive approach to drug abuse, concentrating on the pressure that adolescents face regarding substance use. The program addressed the fact that adolescents ages 10 to 14 are highly susceptible to experimentation and peer pressure to use drugs and cigarettes, and that cigarette use during formative years can serve as a gateway to further drug use and delinquency. Also taking into account that school transition provides a critical risk period for smoking and risk behavior in youths, the program adopted a comprehensive school-based curriculum to prevent and reduce substance use in middle school students.

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## **2. Implementation considerations (if available)**

To facilitate successful implementation of the MPP, it is recommended that the community donate available resources such as office space, technical support, media coverage, or other various materials. Additionally, strong support from parents and school principals was necessary to bolster implementation of the family and school components of the program. It was important that all participants put forth necessary effort, as trainers and leaders were required to make a 2- to 2½-year commitment to the program.

Training of all participants is a vital aspect to facilitate proper implementation of MPP. Teachers were required to participate in a 2-day training session before implementation of the school component, and were also required to attend yearly ½-day refinement sessions. It was recommended that program implementation occurred within 2 weeks of training, or teachers could forget vital techniques and information from training sessions. Community leaders and school superintendents were also required to complete a series of training sessions to facilitate effective implementation of the program. Initial sessions included familiarizing leaders with effective prevention techniques, and setting general goals for the task force or council. Later sessions entailed the review of prevention and intervention research to guide further direction of program goals. Finally, the parent program component involved a 1-day training that included discussion and collaboration between parents and principals. During this session, groups conducted a policy needs assessment that was tailored to the needs of specific schools to plan long-term prevention efforts.

## **3. Descriptive information**

<b>Areas of Interest</b>	Substance abuse prevention
<b>Outcomes</b>	1: Smoking prevalence rates 2: Cigarette use 3: Alcohol use
<b>Outcome Categories</b>	Alcohol Drugs Tobacco
<b>Ages</b>	Middle Childhood (9-12) Adolescence (13-18) (middle school specifically)
<b>Gender</b>	Male Female
<b>Races/Ethnicities</b>	American Indian or Alaska Native Asian

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	Black or African American Hispanic or Latino White Race/ethnicity unspecified
<b>Settings</b>	School
<b>Geographic Locations</b>	Urban Suburban
<b>Implementation History</b>	<p>Example Sites: Kansas City, Missouri; Kansas City, Kansas; and Indianapolis, Indiana</p> <p>This program received a "proven" rating. The program was studied in two locations, with thousands of sixth and seventh graders who were assigned to program and control groups. Several separate studies have shown significant effects on several positive outcomes over differing lengths of time.</p> <p>One potential concern regarding the methodology used in the Kansas City area is that only eight of the 42 schools were randomly assigned to either the program or control group. The others were assigned based on the flexibility of the school to incorporate the program. Although a random-assignment study is ideal, control and program groups were observably similar in student demographics and in grade level-adjusted student drug use rates at baseline. This limitation does not apply to the schools in Indiana. In Indiana, all 57 schools in the study participated in either the treatment or control group because they were randomly assigned to that group.</p>
<b>NIH Funding/CER Studies</b>	
<b>Adaptations</b>	
<b>Adverse Effects</b>	
<b>IOM Prevention Categories</b>	Universal

## **4. Outcomes**

### **Outcome 1: Smoking prevalence rates**

<b>Description of Measures</b>	Pentz and colleagues (1989) conducted a randomized control trial of the Midwestern Prevention Project (MPP) in Kansas City, Mo., a longitudinal study that spanned 6 years. The experiment began in
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	<p>fall 1984, and the study concentrated on providing an evaluation of the program’s impact on cigarette use prevalence among middle school students. Schools were assigned to either a program group—which received school, booster, parent, and mass media program components—or a control group that received regular health education programming in school as usual. As there was no realistic way to prevent access to the mass media component, the control group was assumed to have access to this component of the intervention. The sample included eight schools, totaling 1,122 sixth and seventh grade students. To evaluate the effectiveness of MPP, the program’s impact on smoking prevalence rates was analyzed. Smoking prevalence rates were measured through an analysis of self-reported cigarette use, supplemented with a biochemical analysis of monoxide in students’ breath. Both measures were combined to determine an overall impact on smoking prevalence rates.</p> <p>Self-reported cigarette use among students was measured through the administration of a questionnaire regarding smoking behavior. Students completed a self-administered questionnaire about 1½ months before the intervention, between early November 1984 and early January 1985, to provide baseline data. Three follow-ups were conducted to monitor the progress of the intervention’s effects; these occurred at 6 months, after 1 year, and after 2 years. The questionnaire included items regarding smoking behaviors, drug use, and psychological factors related to drug use, and four categories of questions were used as indicators of program effects: lifetime use, last-month use, last-week use, and current use of cigarettes.</p> <p>A biochemical measure of smoking was used to enhance the accuracy of the data collected from the survey results, which entailed the collection and analysis of carbon monoxide in students’ breath. During this procedure, each student was instructed to inhale deeply and hold his or her breath for 10 seconds. Students then exhaled through a straw to blow up the balloon, after which indicator readings were recorded. The instrument was calibrated before its use, to account for levels of carbon monoxide in the air that could be from heating systems or other sources. These recordings were used to estimate the concentration of carbon monoxide in expired air from the lungs, to estimate whether cigarette use was evident.</p>
<p><b>Key Findings</b></p>	<p>The results of the study by Pentz and colleagues (1989) provided evidence that the Midwestern Prevention Program (MPP) significantly reduced cigarette smoking prevalence among treatment</p>

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	youths relative to control youths. Analyses indicated that at 2-year follow-up program schools had approximately 13 percent fewer cigarette users in the last month than would be expected without MPP intervention. The 13 percent net decrease in smoking in program schools translates to a 30 percent rate of decline in program schools relative to control schools.
<b>Studies Measuring Outcome</b>	Study 1
<b>Study Designs</b>	
<b>Quality of Research Rating</b>	

### **Outcome 2: Cigarette Use**

<b>Description of Measures</b>	<p>Chou and colleagues (1998) conducted a randomized controlled trial of MPP in Indianapolis, Ind., beginning in fall 1987. The evaluation concentrated on the impact MPP made in reducing tobacco use, alcohol use, and marijuana among middle school students. A cohort of adolescents from 57 schools in 12 school districts was identified for inclusion in the study, and schools were randomly assigned to either a treatment condition or control condition. Thirty-two schools were placed in the treatment condition and used all components of the MPP curriculum. Twenty-five schools were placed in the control group and were assigned to a health-education-as-usual condition. To be eligible for participation in the study, adolescents must have reported use of cigarettes, alcohol, or marijuana in the month before baseline data collection. The number of students included in the study totaled 3,412, with 1,904 in the treatment group and 1,508 in the control group. Students were tracked for four follow-ups at 6 months, 1½ years, 2½ years, and 3½ years after baseline data collection.</p> <p>The study used the administration of a self-report questionnaire regarding students' recent substance use. The questionnaire consisted of a hundred items that measured substance abuse behavior as well as demographic characteristics, attitudes, and social influences related to substance abuse. Responses regarding cigarette use, alcohol use, and marijuana were evaluated separately to determine the potential impact of MPP on each behavior.</p>
<b>Key Findings</b>	The results of the study by Chou and colleagues (1998) provided evidence that the MPP significantly reduced cigarette use among treatment youths relative to control youths. However, such effects

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	were present only at the initial 6-month follow-up, and significant effects were not sustained throughout the remaining follow-up assessments.
<b>Studies Measuring Outcome</b>	Study 2
<b>Study Designs</b>	
<b>Quality of Research Rating</b>	

**Outcome 3: Alcohol use**

<b>Description of Measures</b>	<p>Chou and colleagues (1998) conducted a randomized controlled trial of MPP in Indianapolis, Ind., beginning in fall 1987. The evaluation concentrated on the impact MPP made in reducing tobacco use, alcohol use, and marijuana among middle school students. A cohort of adolescents from 57 schools in 12 school districts was identified for inclusion in the study, and schools were randomly assigned to either a treatment condition or control condition. Thirty-two schools were placed in the treatment condition and used all components of the MPP curriculum. Twenty-five schools were placed in the control group and were assigned to a health-education-as-usual condition. To be eligible for participation in the study, adolescents must have reported use of cigarettes, alcohol, or marijuana in the month before baseline data collection. The number of students included in the study totaled 3,412, with 1,904 in the treatment group and 1,508 in the control group. Students were tracked for four follow-ups at 6 months, 1½ years, 2½ years, and 3½ years after baseline data collection.</p> <p>The study used the administration of a self-report questionnaire regarding students' recent substance use. The questionnaire consisted of a hundred items that measured substance abuse behavior as well as demographic characteristics, attitudes, and social influences related to substance abuse. Responses regarding cigarette use, alcohol use, and marijuana were evaluated separately to determine the potential impact of MPP on each behavior.</p>
<b>Key Findings</b>	The results of the study indicated significant reductions in alcohol use among treatment youth at the first two follow-ups—that is, up to 1½ years, relative to the control group. Significant effects were not sustained throughout the remaining follow-up assessments.
<b>Studies Measuring Outcome</b>	Study 2

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Study Designs	
Quality of Research Rating	

5. **Cost effectiveness report (Washington State Institute of Public Policy – if available)**
6. **Washington State results (from Performance Based Prevention System (PBPS) – if available)**
7. **Who is using this program/strategy**

<b>Washington Counties</b>	<b>Oregon Counties</b>

## **8. Study populations**

The following populations were identified in the studies reviewed for Quality of Research.

<b>Study</b>	<b>Age</b>	<b>Gender</b>	<b>Race/Ethnicity</b>
<b>Study 1</b>	6 <sup>th</sup> & 7 <sup>th</sup> Grade students	50% Male 50% Female	82% White 14% African American 4% other races
<b>Study 2</b>	Information not provided	Information not provided	Information not provided

## **9. Quality of studies**

The documents below were reviewed for Quality of Research. The research point of contact can provide information regarding the studies reviewed and the availability of additional materials, including those from more recent studies that may have been conducted.

Chou, Chih-Ping, Susanne Montgomery, Mary Ann Pentz, Louise Ann Rohrbach, C. Anderson Johnson, Brian R. Flay, and David P. MacKinnon. 1998. "Effects of a Community-Based Prevention Program on Decreasing Drug Use in High-Risk Adolescents." *American Journal of Public Health* 88(6):944–48.

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MacKinnon, David P., C. Anderson Johnson, Mary Ann Pentz, James H. Dwyer, William B. Hansen, Brian R. Flay, and Eric Yu I. Wang. 1991. "Mediating Mechanisms in a School-Based Drug Prevention Program: 1-Year Effects of the Midwestern Prevention Project." *Health Psychology* 10(3):164–72.

Pentz, Mary Ann, James H. Dwyer, David P. MacKinnon, Brian R. Flay, William B. Hansen, Eric Yu I. Wang, and C. Anderson Johnson. 1989. "A Multicomunity Trial for Primary Prevention of Adolescent Drug Abuse: Effects on Drug Use Prevalence." *Journal of the American Medical Association* 261:3259–66.

Pentz, Mary Ann, David P. MacKinnon, Brian R. Flay, William B. Hansen, C. Anderson Johnson, and James H. Dwyer. 1989. "Primary Prevention of Chronic Diseases in Adolescence: Effects of the Midwestern Prevention Project on Tobacco Use." *American Journal of Epidemiology* 130(4):713–24.

Pentz, Mary Ann, Sharon F. Mihalic, and Jennifer K. Grotzpetter. 1998. *Blueprints for Violence Prevention, Book 1: The Midwestern Prevention Project*. Boulder, Colo.: Center for the Study and Prevention of Violence.

## **10. Readiness for Dissemination**

## **11. Costs (if available)**

The cost information below was provided by the developer. Although this cost information may have been updated by the developer since the time of review, it may not reflect the current costs or availability of items (including newly developed or discontinued items). The implementation point of contact can provide current information and discuss implementation requirements.

<b>Item Description</b>	<b>Cost</b>	<b>Required by Program Developer</b>
Trainer manual	\$100-\$125	Yes
Additional student workbooks	\$7 each	Yes

### **Additional Information**

The cost to implement the Midwestern Prevention Program (MPP) over a 3-year period is estimated at \$175,000, which includes the costs of teacher, parent, and community leader training and curriculum materials for the school-based program. This calculation is based on a minimum of 20 teachers trained in one group for the school program, 20 parent group members trained in one group for the parent program (about 3 or 4 principals, 4 student peer leader, 12 parents), and 1,000 participating middle school

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students. Beyond this threshold, costs increase to approximately \$4,000 per additional group trained on the same day or trip, \$100–\$125 per additional trainer manual, and \$7 per additional student workbook.

A Blueprints for Violence Prevention monograph on MPP with information on implementing the program is available from the Center for the Study and Prevention of Violence at the University of Colorado, Boulder. An overview of the project is available at <http://www.colorado.edu/cspv/blueprints/modelprograms/MPP.html>, and the full book may be purchased for \$12 (in 2011 dollars).

## **12. Contacts**

### **For information on implementation/research:**

Mary Ann Pentz, Ph.D.  
USC Norris Comprehensive Cancer Center  
University of Southern California  
1441 Eastlake Avenue, MS-44  
Los Angeles, CA 90089-9175  
Phone: (626) 457-6691  
Fax: (626) 457-4012  
Email: [pentz@usc.edu](mailto:pentz@usc.edu)

Gaylene Gunning  
USC Department of Preventive Medicine  
Division of Health Behavior Research  
1000 South Fremont Ave., HAS 5235  
Alhambra, CA 91803  
Phone: (626) 457-6600  
Fax: (626) 457-4012  
Email: [gunning@usc.edu](mailto:gunning@usc.edu)