The Minnesota DARE PLUS Project: Creating Community Partnerships to Prevent Drug Use and Violence

Cheryl L. Perry, Kelli A. Komro, Sara Veblen-Mortenson, Linda Bosma, Karen Munson, Melissa Stigler, Leslie A. Lytle, Jean L. Forster, Seth L. Welles

ABSTRACT: *The research community has criticized Drug Abuse Resistance Education (D.A.R.E.) because the extant literature indicates a lack of evidence that the elementary school program prevents drug use. Yet D.A.R.E. continues to be the most widely implemented drug use prevention program in the United States and has considerable community support. To date, the junior high D.A.R.E. program has not been evaluated. The Minnesota DARE PLUS Project is a randomized trial of 24 schools and communities. During 1999-2001, students in eight schools will receive the junior high D.A.R.E. curriculum in 7th grade; eight schools also will receive the curriculum as well as additional parent involvement, peer leadership, and community components in the 7th and 8th grades; and eight schools will serve as controls. This article describes the background and conceptualization, the curriculum and additional intervention components, and the evaluation methods of the DARE PLUS Project.* (J Sch Health. 2000;70(3):84-88)

Drug Abuse Resistance Education (D.A.R.E.) is a controversial topic in the prevention literature. The D.A.R.E. elementary curriculum has been criticized by researchers for its short-term and modest effects on adolescent drug use behavior, and its limited use of interactive activities.[1] Yet, D.A.R.E. has been both maintained and disseminated in communities throughout the United States, and continues to be the most widely implemented drug use prevention program in the nation.[2,3] Thus, the contrast between what prevention researchers concluded and acceptance of the D.A.R.E. program by community members represents the core of this controversy.

D.A.R.E. began in 1983 as a collaborative effort between the Los Angeles Police Department and the Los Angeles Unified School District. By 1997, D.A.R.E. was taught to more than 33 million children worldwide. Most students are exposed to the main D.A.R.E. curriculum, a 17-session classroom program for 5th- and 6th-grade students, taught by trained police officers. An excellent review of the diffusion of D.A.R.E. is presented elsewhere.[2]

Several evaluations of the D.A.R.E. elementary curriculum reported short-term changes in knowledge, attitudes, beliefs, and cigarette smoking behavior,[1,4-6] which were only modest in size,[4] and not sustained in long-term studies.[7,8] A meta-analysis concluded that D.A.R.E.'s short-term effectiveness for delaying drug use was small, and substantially less than that of more interactive prevention programs.[1,9]

These interactive programs,[10-12] however, have primarily been implemented in middle or junior high school, not in elementary school. Even successful curricula have not shown encouraging results when they were evaluated in dissemination studies that have less control over implementation by the investigators.[13,14] Evaluations of D.A.R.E. might be compared with these studies rather than with results from controlled trials. Moreover, the elementary school D.A.R.E. curriculum is enormously popular with students and community members, who cite improved antidrug attitudes among young people and more positive relationships with police as consistent outcomes of the program.[2,15]

D.A.R.E. America, Inc., also has been concerned with the modest outcomes of the elementary school program and the negative publicity the evaluations generated. Partially in response to these, middle/junior high school and high school programs were developed. In addition, a program of after-school activities, D.A.R.E. + P.L.U.S. (Play and Learning Under Supervision) has been piloted in several cities around the country. No independent evaluations have been conducted of the middle/junior high school or high school curricula, or the D.A.R.E. + P.L.U.S. program.

D.A.R.E. has achieved what has been difficult for many prevention researchers to do – to organize and implement an effective dissemination strategy. It seemed important to capitalize on this strength and to work with the D.A.R.E. organization to see if longer-term and more robust outcomes could be achieved. Thus, discussions began in 1997 with representatives from Minnesota D.A.R.E., Inc., to develop a grant proposal to supplement and evaluate the D.A.R.E. middle/junior high school curriculum. The most successful drug use prevention programs have been implemented in middle/junior high school, have involved multiple years of curricula, and have had multiple program components.[16,17] The Minnesota DARE PLUS Project, described in this paper and funded by the National Institute on Drug Abuse, was created to build on the successful elements of D.A.R.E. and supplement the curriculum with comprehensive, state-of-the-art prevention strategies.

THE MINNESOTA DARE PLUS PROJECT

The DARE PLUS Project will demonstrate whether an expanded D.A.R.E. at the middle/junior high school level, with supplementary components, can reduce tobacco, alcohol, and marijuana use, and violent behavior among 7th- and 8th-grade students. The study design involves 24 middle or junior high schools in Minnesota which have been matched on socio-economic measures, drug use, and size, and randomly assigned to three conditions. Eight

Cheryl L. Perry, PhD, Professor, <perry@epi.umn.edu>; Kelli A. Komro, PhD, Assistant Professor; Sara Veblen-Mortenson, MPH, MSW, Project Director; Linda Bosma, MA, Community Intervention Coordinator; Karen Munson, MBA, Evaluation Coordinator; Melissa Stigler, MPH, Research Assistant; Leslie A. Lytle, PhD, Associate Professor; Jean L. Forster, PhD, Professor; and Seth L. Welles, PhD, Assistant Professor, Division of Epidemiology, School of Public Health, University of Minnesota, 1300 S. Second St., Suite 300, Minneapolis, MN 55454. *This article was submitted September 23, 1999, and revised and accepted for publication November 22, 1999.*

schools are receiving the D.A.R.E. middle/junior high school curriculum, taught by trained police officers, during the 1999-2000 school year. Eight schools will also receive the D.A.R.E. curriculum and, in addition, the DARE PLUS programs (to be described) in the 1999-2001 school years. Eight schools will serve as "delayed program" control schools, and will receive the DARE PLUS programs in 2001 after the active study phase.

Recruitment

The first challenge of the DARE PLUS Project was to recruit 24 schools, a process that took more than six months. This task was difficult because both the middle/junior high schools and their respective police departments had to agree to all aspects of the research design. Endorsements from the major proponents of D.A.R.E. in Minnesota were needed prior to approaching schools and police departments, including letters from Minnesota D.A.R.E., Inc., the Minnesota D.A.R.E. Advisory Board, the D.A.R.E. Police Officers' Association, and the Minnesota D.A.R.E. Board of Directors. These letters assured the various police departments that D.A.R.E. was fully behind the project. Meetings also were held with program representatives from D.A.R.E. America. Packets were prepared that included these support letters, a DARE PLUS Project brochure, information on the investigators, research papers from prior drug use prevention programs, and cooperative agreements. The cooperative agreements listed what the school or police department would receive from participating, and what was expected of them as well.

School districts in Minnesota that had middle/junior high schools with a 7th-grade population of 200 or greater were targeted, as was needed for sufficient statistical power. Letters were sent to 62 school districts. These letters were followed by personal calls to the districts' administration, and 31 meetings were scheduled. If a school was interested in participating, the appropriate police department was sent a letter, called, and a meeting scheduled. These meetings resulted in the recruitment of 24 schools with more than 7,200 7th-grade students. These schools come from inner city, urban, suburban and rural areas of Minnesota, with the majority from the Twin Cities metropolitan area. The student population is about 25% from African-American, Asian, Hispanic, and American Indian ethnic/racial groups (higher than the overall state percentage of 17%).[18]

Table 1
DARE PLUS Neighborhood/Community Action Teams: Potential Activities

- Parent patrols around school grounds before and after schoc
- Citizen patrols around neighborhood
- Neighborhood watch clubs
- Work with neighborhood police officers to address problems identified by the neighborhood action teams
- Anonymous Hotline or P.O. Box for reporting suspicious and/or illegal behavior
- Eliminating harmful messages/creating positive messages around school and neighborhood environments (eg, signage, graffiti, clean-up, trash pick-up)
- Institutional policies to create drug and violence-free environments for young adolescents at neighborhood festivals, school grounds, church activities, public areas (eg, parks, sports fields), and recreation centers
- Merchant initiatives (eg, policies to limit sales of alcohol, tobacco, firearms to youth)

The DARE PLUS Intervention

The D.A.R.E. middle/junior high school 10-session curriculum provides skills in recognizing and resisting influences to use drugs and to handle violent situations. It also focuses on character-building and becoming a citizen in our communities. The police officers who teach the middle/junior high school D.A.R.E. received training in the elementary school D.A.R.E. curriculum, taught at least two semesters, and received training in the middle/junior high school curriculum.

In examining the curriculum's content, staff decided that added emphases on peer influences, parental involvement, supervised student-planned, after-school activities, and neighborhood community organizing, might promote changes in these other arenas of a young person's social environment. Figure 1 contains the DARE PLUS Project intervention model.

The first component of DARE PLUS is a classroom-based parental involvement program, titled "On the VERGE" or "VERGE." VERGE is a four-session, peer-led classroom program implemented by trained teachers once a week for four weeks. VERGE was designed as a teen magazine, and the classroom activities focus on influences and skills related to peers, social groups, media, and role models. The narrator of the magazines is a very "cool" bear, named Buddy DaBear (or sometimes Buddy DaBody DaBear). There are two main classroom activities in each of the four sessions, which are integrated into the magazines. Classroom activities are primarily led by elected and trained peer leaders, with 5-6 peer leaders for each classroom. There are also sections in the VERGE magazines in which real teens tell their stories ("Reality Check"), a "Dear Buddy" column, and a quiz for teens to assess their social and interpersonal skills.

The last part of the magazine includes activities for students to complete with their parents around these same themes, using a "home team" approach.[19] Each issue contains an introduction to the theme, a tip sheet for parents, two interactive and fun activities for parents and their 7th/8th grader to complete, and a scorecard to fill out and return to class indicating completion of the VERGE Home Team activities. Incentives are provided to encourage parental participation. As a follow-up to VERGE, parents receive postcards about every eight weeks, with brief and relevant behavioral messages and with artwork that will attract attention.[20]

The second component of DARE PLUS involves after-school activities for students. Student groups, called youth action teams, will be organized during the 1999-2001 school years at each of the eight DARE PLUS schools. Students will be recruited to participate in these groups to help create widespread normative changes at the school level. The peer group approach is based on prior work with peer participation programs[21] and youth action teams.[20] Peer action groups will involve students in determining the types of extracurricular activities that will be created and participating in their planning and implementation, ensuring that activities are student-driven, rather than adult-planned.

Activities will be held after school and on weekends, primarily on school property, and will include social, educational, career, and service opportunities appropriate for young adolescents. Eight community organizers were hired to create and facilitate the teams and extracurricular programs in the DARE PLUS schools and will recruit parent/adult volunteers to help students implement the activities.

The final component of DARE PLUS involves neighborhood action teams, which will be formed at each DARE PLUS school to address neighborhood and schoolwide issues related to drug use and violent behavior. The same community-based organizers responsible for the peer-planned extracurricular activities will organize these action teams. Organizers will be trained in direct-action community organizing methods as used in our prior research with tobacco and alcohol use, but in this case applied to neighborhoods and schools.[20,22,23] Five stages of organizing will be followed.

Stage 1, "Assessment," involves a thorough evaluation of the strengths, resources, and components of each of the eight DARE PLUS neighborhoods and communities to determine environmental factors that increase young people's access, exposure, and norms around drugs and weapons. Organizers become familiar with their neighborhoods and communities, and then begin one-on-one conversations with school staff, students, and neighborhood residents to assess levels of interest, relative importance, and commitment to the issue of teen drug use and violence prevention.

Stage 2, "Action Team Creation," involves the formation of action teams of 10-20 people based on the one-on-one discussions. Organizers will pay particular attention to representation by key stakeholders in the community and diversity, so the team will represent the community. The team will identify issues and their ability to influence them, as well as determine who else needs to be involved.

Stage 3, "Creation of An Action Plan," focuses on identifying policies, initiatives, and activities that may reduce access, promote positive role models, and nonuse, nonviolent norms in each neighborhood/community. Training of action team members will provide additional information on selected policies and programs and how to create action in those selected areas. Table 1 contains a menu of potential activities.

Stage 4, "Mobilization and Action," involves an awareness/educational campaign in the neighborhoods and schools, based on prevention initiatives chosen in their action plans, and as a way to begin to mobilize the community. This step also may involve door-knocking, more one-on-ones, meetings with key stakeholders and decision-makers, and recruiting additional support.

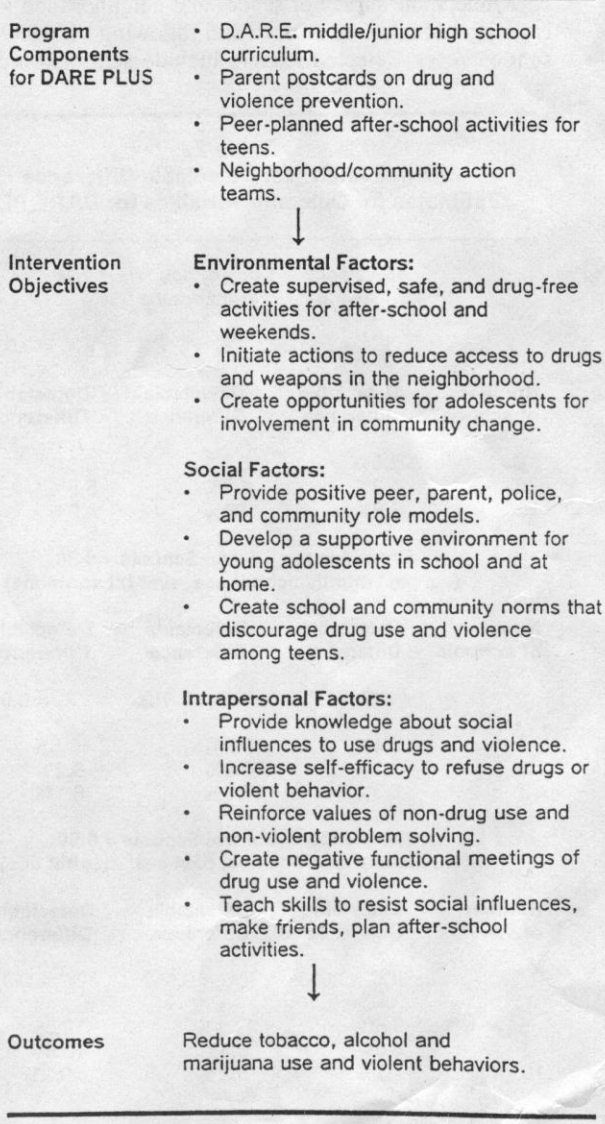
Finally, Stage 5, "Implementation," represents culmination of the previous four steps; the team tries to achieve the realization of their action plan goals, such as a policy being implemented or initiative carried to fruition. Neighborhood action team activities will be ongoing through spring 2001.

The DARE PLUS intervention components are intended to change the social environment of young adolescents through changes in role models, norms, opportunities, and support in their classrooms, at school, at home, and in the neighborhood/community surrounding the school. The additional intervention components described were selected based on prior successful prevention research with this age group, and because they complement and supplement the D.A.R.E. classroom program.[16,24] Thus, DARE PLUS is seen as one way to construct a "safety net" for young adolescents in our communities, by creating opportunities where peers, parents, teachers, police officers, and community members provide consistent and coordinated support, reinforcement, and messages about not using drugs and violence.

Evaluating D.A.R.E. and DARE PLUS

Evaluation of the DARE PLUS Project includes process, intermediate, and outcome measures in the 24 schools. The intermediate and outcome measures include individual assessments of the cohort of students who are 7th graders in the 1999-2000 school year and neighborhood leaders before and after the interventions. In addition, school

Figure 1
The DARE PLUS Intervention Model for Drug Use Prevention Among Young Adolescents



archival data are being collected that will include measures of absenteeism and truancy rates, suspensions, and expulsions. Process measures assess the implementation of each program component, including measures of exposure, participation, compliance, receptivity, and fidelity of implementation.

The major outcome measures for the study – prevalence of alcohol, tobacco, and marijuana use, and violent behaviors (fighting, carrying a weapon, carrying a gun) among the study cohort – are being measured by a self-administered survey. This survey is based on surveys administered in previous studies.[18,24,25] In addition, constructs to be measured include demographic characteristics, social normative beliefs around substance use and violence, perceived behaviors of peers and adults, perceived availability of substances, parental monitoring and communication, neighborhood and school safety, involvement in safe and healthy activities, social support, social skills, functional meanings, outcome expectations, and self-efficacy in refusing to participate in unhealthy or risky behaviors. Measures of self-reported exposure to the intervention components also will be included.

A telephone survey of school and neighborhood leaders is being administered prior to and following the 1999-2001 school years. Selected leaders include school principals, school counselors, presidents of parent-teacher associations, school liaison police officers, school nurses, extracurricular activities coordinators, athletic directors, neighborhood police officers, youth ministry directors of nearby churches and temples, and other relevant leaders as identified by respondents. The instrument contains measures of citizen participation in decisions about local programs and policies, school and neighborhood resources for youth, perceptions of substance use and violence problems in their school and neighborhood, school and neighborhood safety, police and citizen involvement in prevention, and perceptions of the D.A.R.E. program. The survey should provide evidence of changes that occurred in the larger community environment as a result of the DARE PLUS activities.

Table 2
Power Analyses: Detectable Difference Estimates for Outcome Variables for DARE PLUS

Prevalence in Control Schools = 0.10 (eg, past year marijuana use)

Number of schools	ICC = 0.008 Detectable Difference	ICC = 0.012 Detectable Difference	ICC = 0.016 Detectable Difference
6	5.0%	5.7%	6.3%
8	4.3%	4.9%	5.5%
10	3.9%	4.4%	4.9%

Prevalence in Control Schools = 0.30 (eg, past month alcohol use, ever hit someone)

Number of schools	Detectable Difference ICC = 0.008	Detectable Difference ICC = 0.012	Detectable Difference ICC = 0.016
6	8.4%	9.7%	10.8%
8	7.1%	8.2%	9.2%
10	6.3%	7.3%	8.1%

Prevalence in Control Schools = 0.50 (eg, lifetime cigarette use, past year alcohol use)

Number of schools	Detectable Difference ICC - 0.008	Detectable Difference ICC = 0.012	Detectable Difference ICC = 0.016
6	9.5%	11.1%	12.5%
8	8.0%	9.3%	10.5%
10	7.1%	8.2%	9.2%

Data Analysis Methods

The study is a community trial, characterized by allocation of intact social groups to study conditions. For example, a school and surrounding neighborhood will be randomly assigned to study condition. Community trials present several challenges for data analyses.[26,27] Fortunately, recent advances in statistical software allow workable and often optimal solutions, protecting the Type I error rate while taking advantage of the efficiencies afforded by measurements at the level of the student.[28]

Differences among the three conditions – DARE PLUS, the junior high D.A.R.E. curriculum alone, and control – will be examined using mixed-model regression methods that can accommodate fixed effects, random effects, and correlated observations within assignment units typically found in community trials research.[28] The unit of randomization, the school, is specified as a nested random effect. The SAS/STAT MIXED and GLIMMIX procedures will be used in these analyses.[29]

Power Analysis

The average class size in the 24 middle and junior high schools is 300. Staff calculated detectable differences for a number of variables that influence power: 1) numbers of schools, 2) prevalence of outcome behaviors, and 3) intraclass correlation coefficients (ICC) due to correlated outcomes within schools. Project Northland observed an ICC of .008 for past month alcohol use among 8th-grade students.[24] This ICC was used in the power calculations for this study, as well as increasing this ICC estimate by 50% and 100%, to .012 and .016, to provide more conservative estimates of detectable differences. Type I and II error rates were set at 5% and 20%, respectively. Table 2 contains results of the power calculations.

DARE PLUS has eight schools per condition and 300 students per school. Using that sample size and an ICC=0.008, the design will be able to detect a 43% reduction in behaviors that have a usual population prevalence of 10%; a 24% reduction in behaviors with a usual prevalence of 30%; and a 16% reduction in behaviors with a usual prevalence of 50%. Translating the detectable differences into standardized units, the design can detect effect sizes of 0.16. Effects of .20 standardized units or less are considered small and studies designed to have sufficient power to detect such effects are considered quite powerful.[30]

CONCLUSION

The DARE PLUS Project began with a recognition that D.A.R.E. has done what prevention researchers have found difficult – to disseminate and replicate successful programs throughout the country. In addition, D.A.R.E. has public support, perhaps because community members perceive one part of the "safety net" being implemented for young people by connecting them in a positive way with the police. D.A.R.E. has responded to criticism and developed a curriculum for middle/junior high school as well as a program of after-school activities, which have not yet been evaluated. Thus, the Minnesota DARE PLUS Project will not only evaluate the middle/junior high school D.A.R.E. curriculum, but supplement D.A.R.E. with new components based on successful prevention programs.

The Minnesota DARE PLUS Project has been well-received within the state yet it was difficult to recruit 24 schools to participate. This suggests that conceptualizing a "safety net" for young people may be quite a bit easier than actually creating one. The various sectors of a community – schools, police departments, businesses, city and county managers, churches, etc. – have independent agendas that need to be at least partially merged for consistent and coordinated prevention messages and opportunities to be implemented. Creation of a "safety net" for young people requires a community-level goal and vision, as well as significant buy-in by the various community sectors, so that each sector can more effectively be involved.

The Minnesota DARE PLUS intervention strategies were derived from prior prevention intervention research.[20-24] The involvement of young people in delivering the VERGE program, communicating with their parents, and creating after-school activities allows them to develop skills to organize a healthier environment for themselves and other young people. Reinforcement of these skills with parental education, resources for after-school activities, and a supportive community environment will hopefully lead to less dichotomy between what is taught in the classroom or by parents and what is observed on the streets, and in their schools and neighborhoods. The Minnesota DARE PLUS evaluation, with a strong randomized design and multiple levels of measures, should provide insight into how, if, and why the intervention was successful. ■

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