Public Information and Education in the Promotion of Highway Safety

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PUBLIC INFORMATION AND EDUCATION IN THE PROMOTION OF HIGHWAY SAFETY

This digest is an interim deliverable from NCHRP Project 17-33, "Effectiveness of Behavioral Highway Safety Countermeasures," which is being carried out under a contract with Preusser Research Group, Inc. under the direction of David F. Preusser (Principal Investigator). It was prepared by Allan F. Williams, Preusser Research Group, Inc. This digest assesses the role of public information and education programs in contributing to behavior change in the highway safety area, and indicates possible future directions.

INTRODUCTION

Public information and education (PI & E) programs have been used extensively in the highway safety field, although many programs have been of poor quality. Even high-quality programs rarely work by themselves in changing individual behavior; their contribution is greater when combined with other prevention efforts in support of law enforcement or as part of broader-based community programs. Money allocated to PI & E programs should be concentrated on high-quality programs incorporating elements likely to be successful in changing individual behavior. It is also important that PI & E programs be used to promote and support effective policies that, once implemented, have permanent effects on the population as a whole.

PI & E programs have been widely used to provide information about health issues and to encourage healthy behavior. Public information programs and education programs have the same goals. Public information programs are typically referred to as mass media programs, because that is their usual method of delivery—through tele-vision, radio, the Internet, and print (news-papers, brochures, and pamphlets). Most education programs involve direct, face-to-face contact with a specific audience. Both types of communications can be stand-alone efforts or part of broader programs, such as community-based programs or enforcement programs. Sometimes both public information and education messages are used in the same program.

Increased knowledge about a health issue often results in a more informed public and shapes attitudes. This is important in that it can help set the public agenda, establishing the problem as one of concern, and providing support and impetus for laws and other means for addressing the problem. A more ambitious goal is to change individual behavior through public information and education, the subject of the present paper. An assessment will be made of PI & E programs that have been used in the highway safety field and their effects on behavior; suggestions for future directions will be offered.

Behavior change is a common goal in various health areas, including those dealing with tobacco, alcohol, and other drug use. In

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addressing highway safety issues, it should be possible to learn from PI & E techniques that have been used in other health areas, even though each has its own characteristics that affect the approach and the likelihood of success. For example, regarding tobacco use, the desired behavior is not to smoke or to quit if you do. One technique is to try to inoculate pre-teens against social pressures they will soon face to take up smoking. However, virtually everyone drives, so it is a matter of how, not whether, you drive. The behavioral goals are to drive in ways that avoid crashes: paying attention, obeying traffic laws, driving "defensively," not driving when fatigued or impaired by alcohol, and protecting oneself against injury through restraint and helmet use.

Motor vehicle crashes stem from multiple causes, but most involve some degree of driver error, and the relationship between driver behavior and crashes is clear and immediate. In other health areas—for example, tobacco use—the relationship between the behavior and unwanted health outcomes is not as clear and not as immediate. The obvious link between behavior and crashes is one reason there has always been an emphasis on changing driver behavior, although there are other ways to reduce crashes and their consequences through vehicle design enhancements and sound engineering/environmental practices. The latter are essential elements, and the field has evolved to incorporate a more balanced approach, guided by the Haddon Matrix, which includes behavioral, vehicle, and environmental factors, as well as pre-crash, during-the-crash, and post-crash options. However, behavior change approaches remain prominent and popular.

DRIVER BEHAVIOR DIFFICULT TO CHANGE

There are many factors that make driver behavior difficult to change. Safe driving practices and protective behaviors like seat belt use have to be done on each trip, so programs that have only a short-term life are basically worthless. Moreover, most people know how they are supposed to behave on the highways; it is not a matter of lack of knowledge. What people actually do, however, is governed by attitudes, motivations, lifestyle factors, and assumptions about risk, and veteran drivers have well-developed habits that pose a challenge to change.

Secondly, it is known from risk perception research that in very familiar activities there is a tendency to minimize the possibility of bad outcomes as a way of allaying personal concerns (1). People

underestimate risks that are supposed to be under their control, insulating themselves by creating "illusory zones of immunity" around everyday activities (2). This sense of subjective immunity is bolstered by most people's beliefs that their own driving skills are superior (3). Crashes happen, but they happen to other drivers. This helps to explain why communicating information about the statistical likelihood of being in a crash does not necessarily motivate people to change their driving behavior (4).

Drivers tend to underestimate the likelihood they will be in a crash, but if they collide with someone, most believe it will be the other driver's fault (5). We want other drivers to behave on the highways so they do not threaten us, and in that context, safety messages are for others, not ourselves. People in general have an "optimistic bias," thinking that they are less likely than others to suffer misfortunes (6). Not surprisingly, in a number of health realms, including highway safety (7), the so-called "third-person effect" is encountered—people viewing health messages as being for others but not themselves (8). This may be even more of a factor in regard to highway safety messages, due to the psychological tendency of people to protect themselves by minimizing the possibility of harm resulting from the everyday activity of driving.

Finally, crashes—especially serious ones—are rare events; therefore, speeding, driving while impaired, running red lights, and other dangerous and illegal behaviors generally have no downside. In this sense, people are rewarded every time they complete a trip involving these and other actions.

Taken together, these factors pose significant barriers to efforts to influence highway safety behavior through PI & E programs, and point to the importance of paying more attention to risk communication science in shaping messages to the public (9). Public information and education programs are intended to "inform" and to "educate," but they are also usually meant to influence people to take specific actions. How successful are they at doing so?

IMPORTANCE AND USE OF EVALUATIONS

Many PI & E programs have been conducted in the highway safety area over the past several decades, so there should be a good basis for knowing how successful programs of various types have been in changing people's behavior. Unfortunately, the vast majority have not been evaluated, so it is not possible to know if they work as intended. Unevaluated programs cannot contribute to the science of behavior

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change programs. People may assume that if the program does not work, at least it will not do any harm. However, when proper evaluations have been conducted, some programs have been found to have negative outcomes. For example, a bicycle education program in Australia produced harmful effects, probably by inadvertently encouraging risk taking (*10*). This is unusual, but it makes clear the importance of evaluation in guiding the field away from programs that somehow encourage what they are intended to discourage.

A second problem is evaluations that are deficient in scientific quality, such as the simplistic "before-after" studies that dominated the early days of highway safety research. Such studies fail to control for the many factors that can influence any changes found. Some studies involve comparisons of a self-selected group with a non-participating one. Biased comparisons of this sort can produce positive outcomes, because those volunteering to participate are often a lower crash-risk group to begin with. Volunteers also are sometimes people who are motivated to get help and introduce some change in their lives. Programs are more likely to work with people who want to attend, or want to change.

Positive outcomes resulting from inadequate evaluations are invariably interpreted as proof of effectiveness and used to promote the program. These self-serving exercises persist, although guides for the proper conduct of highway safety research have been available for many years (*11, 12*). Recently, an excellent guide for evaluation of driver education programs has been made available to state administrators and operators of driver education programs, and this deserves wide circulation (*13*).

When competent evaluations have been done, it is not difficult to find examples of programs that have either had no effect, or short-term effects that dissipate quickly. This is the case for education programs as well as public information and mass media programs, and for both highway safety behavior and behavior in other health areas (*14–22*). This situation is disappointing, but it provides a body of knowledge and a basis for determining how programs might be improved, instead of merely repeating variations of programs that have failed in the past.

WHY SHOULD I CHANGE MY BEHAVIOR?

One important factor in persuading people to change their behavior is the message delivered to them. Fear messages have been a staple in the health education field, used extensively to try to convince drivers to take appropriate actions. It seems natural to use a fear or threat approach. People obviously do not want to be in a serious motor vehicle crash or be injured or killed, and these are possible consequences of not performing recommended behaviors on the highway. So why not try to use this as a motivation to shape behavior?

There is divergence of opinion on the use of fear or threat messages in health education. For example, Job (*23,* p. 163) stated, "Even today, a large number of health promotion campaigns are based on a simple strategy: get behind people with a big stick (lots of threat and fear) in the hope that this will drive them in the desired direction. Unfortunately, in the case of health promotion, this strategy has met with little success." On the other hand, others have concluded that some level of induced fear is an important, even essential motivator, and a review of the recent literature on fear messages yielded the conclusion that "The single most important finding is that threatening messages have their greatest effect on behavior or intentions if they convince the audience that they are personally vulnerable to the negative consequences if they continue to adopt risky behaviors" (*24*). The challenge is to identify the optimal type of threat that is personally relevant. Witte and Allen (*25,* p. 591) note: "Although considerable laboratory research has shown that fear appeals (persuasive messages that arouse fear) motivate behavior change across a variety of behaviors, public health researchers and practitioners continue to contend that fear appeals backfire."

There is a vast literature on the effects of messages that aim to arouse fear, and the results are mixed. Fear appeals seem to work best when combined with high-efficacy messages such as, "Here is something concrete you can do right now to alleviate the danger." However, fear messages can also produce defensive responses, motivating people to do things to avoid the fear but not the danger. This is especially the case when fear appeals are combined with low-efficacy, generalized messages—"drive defensively" is one example. One way to dodge the fear message is to judge that it is more appropriate for someone else (the third-person effect), and there is concern that rejecting fear messages may make people even more resistant to changing their behavior in the future, especially if they perceive the fear message to be exaggerated (*26*).

There are other types of behavior change messages that have been used. It has been suggested that an

alternative to fear messages, more appropriate in some cases, is positive appeals that model safe behavior and evoke such emotions as humor (*27*). One example tested was an ad set in a karaoke bar in which the influence of drinking on singing is illustrated. The message was that the more people drink the more confident and louder they become, but that unlike drinking and driving, drinking and singing will not kill anyone. Focus groups tended to support this approach (*27*). In general, attempting to motivate people with current rewards, including social approval, in preference to holding out the prospect of (often distant) negative consequences, is recommended (*28, 29*). However, there do not seem to be many examples of this approach in the highway safety area (*30*). Other messages include fear of harm to others, attempting to stigmatize people who put themselves and others at risk, and the threat of legal sanctions, a special case that will be discussed later. Unfortunately, there is not enough comparative research that would support conclusions as to what type of message is most persuasive for various target groups. To date, there has been limited investigation of the relative effectiveness of the modeling of "safe" driving with the modeling of negative "unsafe/illegal" driving in the highway safety context (*31*).

PUBLIC INFORMATION PROGRAMS

Limitations

Many have pointed out the limitations of public information or mass media programs in changing behavior when used alone. DeJong and Wallack (1999) note, "Although mass media can be used to raise awareness and set the public agenda, producing meaningful changes in behavior is usually dependent on the more intensive application of resources at the community and interpersonal level." Public information programs obviously have their place, and the literature is full of recommendations for producing quality programs, including careful pre-testing of the message, delineation of the target group, designing appropriate messages, making sure the messages actually reach the target group (which usually involves paid advertising), and delivering the messages in sufficient intensity over time (*32, 33, 34, 35, 29, 28, and 26*). These principles are incorporated in "social marketing," to be discussed later.

Many public information programs in the highway safety field, however, have not addressed these criteria, and generally have been of poor quality, con-sisting of passive messaging, sloganeering, exhorting people to do or not do some behavior, and delivered to an undifferentiated audience over the short term. The simplistic assumption is that if individuals are made aware of behaviors that will enhance their personal health and safety and they are urged to adopt these behaviors, they will do so. Although seemingly logical, this sequence of events is unlikely to happen; nevertheless, the message may reinforce or increase awareness of the health issue being addressed. It is well established that information-only programs are unlikely to work, especially when most of the audience already knows what they are supposed to do (*35, 36, 37, and 29*). Thus highway safety messages conveyed in signs, pamphlets, brochures, and buttons may reinforce social values, but are unlikely to have any effect on behavior.

Cases in which Public Information Programs Are Effective

There are cases in which public information programs have changed behavior, particularly in situations where there is "new" knowledge. The best example is the changeover in child seating positions in vehicles to avoid air bag inflation injuries. This was a new knowledge situation, and it also involved fear of injury plus a concrete step to reduce the fear. The dramatic shift of children to rear seats was largely driven by public information programs (*38*).

In other cases of public information successes, the amount of gain has been small and fleeting, and the cost often high. For example, an intensive public information program in Greece increased seat belt use, but the overall gain was only from 5 percent to 10 percent use, at an estimated cost of three million U.S. dollars (*39*). A public information program in Tennessee, following all of the recommended guidelines for the conduct of mass media programs, found a decrease in at-fault crashes for teenage drivers, but only for the very brief period when the program was up and running (*40*).

Public Information in Combination with Other Behavior Change Elements

Public information programs have an important role to play in producing behavior change when combined with other elements, as a part of broader-based community programs, or in support of law enforcement. Much progress has been made in the highway

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safety field using public information programs to publicize intensive law enforcement efforts. The best examples are from restraint use programs, both child restraints (*41*) and particularly adult seat belt use, through "Click It or Ticket" programs. The original "Click It or Ticket" program in North Carolina featured an aggressive enforcement campaign and an intensive paid advertising campaign focused on the likelihood of getting a ticket for nonuse of seat belts. This combination was credited with producing substantial increases in belt use (*42*). Subsequent research has confirmed that it is the combination of publicity and enforcement that maximizes gains, and that enforcement used alone has lesser effects (*43*). Experience with seat belt enforcement programs across the country has provided empirically based guidelines for message clarity and optimal intensity, placement, and timing of media efforts in conjunction with enforcement (*44*).

A recent review by the Centers for Disease Control (CDC) indicated that high-quality mass media programs addressing alcohol-impaired driving can work in reducing alcohol-related crashes, when implemented in conjunction with other ongoing prevention activities (*45*). This conclusion was based on eight studies done in Australia, New Zealand, and the United States that met minimum criteria for study design. Included was a study based on the Australian Transport Accident Commission's ads displaying grisly crash scenes, considered by many to be the ultimate in scare tactics (*46*). However, it has been pointed out that these ads are far different from typical fear messages because they do not focus on fear of harm to oneself, but on the remorse of individuals who have injured others, and on the distressing effects on others as a result of the driver's injury or death (*30*). Interestingly, CDC found no differences in effectiveness measures in terms of the type of message used, whether it was based on legal or social and health consequences. The authors caution that the media campaigns represented a highly select sample, that the results cannot be generalized beyond the high-quality, high-intensity campaigns examined, and that there is no evidence that they will be effective if implemented in environments where strong existing programs such as enhanced law enforcement are not present.

There have been several programs that have successfully induced behavior change through focused efforts involving a coalition of community groups (*47–51*). Program activities vary, but they typically involve a broad range of groups, including health care professionals, educators, law enforcement, government agencies, private industry, and service clubs. Public information programs have been an integral part of these efforts and are considered essential in making known the rationale, goals, and activities of the campaign; keeping the campaign in the limelight; and reporting on progress.

Good examples of community-based highway safety programs involving mass media (and education programs) come from areas involving children—addressing booster seat and bike helmet use (*52, 53*). Programs were aimed at both parents and children. Both were multifaceted community coalition programs involving extensive public information programs using all available media outlets. The booster seat program was described as an example of social marketing. The booster seat program included education programs for parents; the helmet campaign involved school-based education for children as well as education for adults. Both programs included mechanisms for reducing the cost of the booster seats and bicycle helmets. The booster seat program was aided by the fact that it included "new" knowledge; focus groups conducted prior to the program indicated a substantial lack of information or even misinformation about booster seats. Other studies of booster seat promotion, based on education sometimes combined with free seats or significant discounts, have also reported increases in booster seat use (*54*).

The two community-based programs were successful in achieving higher use rates. However, in both cases, the vast majority were not performing the desired behavior. Bicycle helmet use increased from 5 percent to 16 percent, compared with an increase of 1 percent to 3 percent in comparison non-program communities; booster seat use rose from 13 percent to 26 percent, versus 17 percent to 20 percent in comparison communities.

EDUCATION PROGRAMS

The Importance of Context

A face-to-face encounter allows the relevant audience to be engaged directly. This offers a more promising opportunity to change behavior than public information approaches. There is no question that under the right conditions, educational programs can change behavior. One of these conditions is that the communicator has control over something of importance to the audience. The classic example of this in the highway safety field is the alcohol education

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program at Lackland Air Force Base, conducted in the early 1960s, featuring educational messages depicting driving after drinking as sick behavior (*55*). Some powerful sanctions were available for non-compliance, including psychiatric referral or discharge, which no doubt accounts for the program's success in reducing crashes. Employer situations in general are fertile ground for introducing education programs. There is evidence, for example, that some such programs have increased seat belt use, at least in workplace locations (*56, 57*). However, almost all such programs were conducted in pre-law, low-belt-use environments, and the effect of workplace programs on belt use in today's environment has not been determined.

Limited Success when Change Is Voluntary

Usually, behavior change is more voluntary and thus more difficult to influence. Education programs in the highway safety field have addressed drinking and driving, seat belt use, and general driving styles. As in the case of public information programs, success has been limited. Reviews of traditional drinking and driving programs have found no evidence of positive effects (*58*). A review of educational programs addressing seat belt use—most taking place in heath care settings—found some evidence of increased use, but the median gain was only 4 percentage points found right after or during the program (*59*).

Shaping Driving Styles through Driver Education

The bulk of health education programs take place in schools, where students are a captive audience; this approach also provides access to a population that does not have well-developed health-related habits. This is true in the case of driving, where most do not begin until they obtain a learners permit, generally at age 15 or 16. Driving behavior typically is not included in school-based health education curricula. Thus, driver education programs in school (or commercial programs) have had the dual purpose of teaching young people how to drive and pass the driving test and inculcating safe driving attitudes and practices, all over a limited time period. Understandably, the latter goal often gets short shrift in this process. Although driver education instructors try to influence safe driving, the lecture format has been the traditional approach and there has been an absence of theory-based behavior change approaches.

It is quite clear from the literature that rational/information programs do not work well in inducing behavior change, and that successful programs have to be interactive in nature (*35, 37*).

Fear Approaches with Young People

There are some special issues using fear/threat/scare tactics with young people. The fear approach has been a tradition in driver education, with films depicting serious car crashes and injuries. It also has been used extensively in anti-drinking and driving programs, typically centered around proms and graduations. Some of these programs use extreme scare tactics featuring fake deaths, mock death notifications, and mock funerals. Programs of this type have been referred to as "health terrorism" (*60*). They have not been evaluated but are unlikely to have any effect other than a short-term emotional response (*36, 24,* and *61*). Adolescents are particularly likely to react to severe threats by discounting the likelihood of the negative outcome occurring to them, inoculating themselves, and high-risk youth are most likely to reject such messages (*24*). Moreover, risk communications to young people are difficult because risk has attractions for them, and they tend to assess risk in terms of opportunity for gain rather than opportunity for loss (*24*). Focus groups and interviews with young drivers suggest that many are tired of fear messages, have heard it all before, think these messages are condescending to youth, and are inured to shock messages, given the media they are routinely exposed to (*27*).

Advances in Health Education Programs

As noted earlier, many traditional, short-term, school-based programs dealing with tobacco, alcohol, and other drug use have not worked well. However, there have been significant enhancements in such programs in recent years. There are modern health education programs that are successful in influencing young people, although the gains are usually modest, not necessarily long lasting, or the duration of effects is unknown because only short-term follow-up is done. Many of these are longer-term, comprehensive programs, contrasting with traditional programs that focus on the individual and put the burden of change on the individual, while overlooking influences from family, peers, and the community. Successful programs also tend to be based on behavior change theories, and take into account the steps thought to compose the behavior change process: precontempla-

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tion, contemplation, preparation, action, and maintenance (*62*). Project Northland is illustrative of these approaches, where a school-based program intended to reduce alcohol misuse featured education starting in grade 6 and continuing through grade 12. It included refusal skills training, a parent involvement component, peer leadership opportunities, and community level changes in terms of alcohol availability (*63*). Other studies using variations of this model have also successfully reduced alcohol misuse (*64*). In these programs, school-based education is but one component of a broader program that taps into community resources.

There also has been a trend away from information-only, lecture-oriented programs in favor of interactive methods. What generally seem to work are longer-term programs that teach skills needed to resist social influences to smoke, misuse alcohol, or take illegal drugs; involve active social learning methods, including role play, behavior rehearsals, and group discussion; involve peer opinion leaders; and include parents in the influence process (*65–68, 47, 69, 37,* and *70*). The effectiveness of using peers in program delivery is not totally clear, although it appears that peers alone are more effective than when teachers and peers share this task (*69*).

Social Norming

Social norming programs have most frequently been used in college settings to attempt to reduce alcohol use. The premise is that students drink more than they would otherwise because of the misperception that other students drink more often and consume larger amounts of alcohol than they actually do. It has repeatedly been found that students overestimate the percentage of their peers who drink heavily (*71*). Providing more objective information about consumption patterns is expected to provide motivation to reduce drinking. This is a promising approach, taking advantage of the strong peer influences that exist among young people. Evidence is building that the social norming approach can reduce alcohol consumption on college campuses (*72, 73,* and *74*), although there is some evidence to the contrary (*75*).

Directions for Highway Safety Education

The highway safety field can learn from advances in health education programs in other areas. As pointed out earlier, there are important differences between health education and safety education. In health education, the goal is to teach young people what not to do (such as not smoking or using drugs), whereas many of the relevant highway safety programs teach young people what to do (such as driving defensively). Still, resistance skills training would be appropriate regarding drinking and driving, peer pressure not to use seat belts, and in dealing with the various factors that make teens traveling with other teens such a high-risk activity. In 2005, 53 percent of 14-year-old vehicle passengers killed and 66 percent of 15 year olds were traveling with teenage drivers, indicating early onset of this problem. A strong argument could be made that driving styles and seat belt use might be profitably addressed in earlier years, before a person starts to drive.

In one study of social norming, a small decline was found in the percentage of drivers who had positive blood alcohol concentrations (*72*). The applicability of the social norming technique to drinking and driving among young people, and other driving behaviors such as speeding and risk taking, needs further exploration.

Driver education courses are required in many states in order to obtain a license prior to age 18; even where not required, it is thought that most beginners should take the courses. A basic foundation of driver education is driver skills training, but those who design driver education programs are well aware of the importance of attitudes and motivations in crash involvement. There are programs developed in Scandinavia and elsewhere that focus on attitudinal-motivational skills, known as "insight" training programs (*76*). However, these programs tend to be short term, often just one session, and thus far programs that have tried to change driving behavior by addressing lifestyle factors have not been successful (*77, 78*). It may be necessary to fold driver education into a broader community-based program, as has been done in other heath areas. One approach would be (a) to integrate skills and insight training programs (or other behavior change programs based on social learning theory) into a program that would include well-publicized programs involving parents and police to encourage proper driving and (b) to enforce graduated licensing rules, with involvement of teens in this process (*79*). So far this has not been tried.

Modern Drinking and Driving Educational Programs

Advances in health education programs in the broader health education field have begun to be incorporated in drinking and driving programs. In a

recent review of the literature by the CDC, it was noted that "many of the more recent school-based programs . . . are either explicitly theory based, or incorporate theory-based concepts, such as peer intervention, social deviance, education inoculation, and risk skills training" (*80*). This is a step forward.

The adoption of modern behavior influence techniques in drinking and driving programs has led to limited success. One program dealing with alcohol misuse, which included resistance skills training, was also evaluated for its effects on highway safety outcomes. Reductions in driving offenses were found that were marginally statistically significant, although only for the first year, and there were no effects on crashes (*81*). A program that included brief, personalized group discussions found positive effects on self-reported driving after drinking, but the effects were not maintained beyond 6 months (*82*). The CDC identified nine studies aimed at reducing drinking and driving that met standard criteria for scientific evaluations, and concluded that there was insufficient evidence to determine their effectiveness (*80*). CDC also evaluated programs intended to influence riding with a drinking driver and found evidence of effectiveness, based on self-reported behavior.

Programs for Parents

Another developing area for highway safety education programs involves programs targeting parents. The approach is to try to help parents become more involved in the driving behavior of teens, in terms of enforcing and supplementing graduated licensing rules and monitoring their teens. One promising technique is the Checkpoints Program, which uses modern behavior change theory to attempt to convince parents to adopt and maintain restrictions on teen driving during the first year of licensure. The program has been successful in influencing parents' reported behavior, although there has been no direct effect on crash involvement (*83*). Another novel program, involving two 90-minute home meetings with families before and after teens were licensed, attempted to improve communication between teens and parents about driving issues, to improve driving-related decision skills, and to assist in developing parent–teen contracts about driving rules and consequences. Teens subsequently reported fewer risky driving incidents than a comparison group, and were more likely to have negotiated contracts about driving, although there were no effects on crashes (*84*).

SOCIAL MARKETING

Social marketing has been in vogue for many years and is highly regarded. For example, Maibach and Holtgrave (*6,* p. 220) state, "Social marketing is perhaps the most developed approach to public health communication." They also note how social marketing has resisted simple definition by quoting Ling et al. (*85,* p. 342), who describe social marketing as "a social change management strategy that translates scientific findings into action programs." It is further explained that social marketing "attempts to persuade specific target audiences to adopt an idea, practice, and/or product through a variety of approaches and channels of communication combined in an integrated, planned framework." The lack of specificity in these definitions and descriptions leaves many unclear as to what exactly social marketing is and how it is differentiated from other behavior change approaches. This uncertainty is compounded by the use of the term to describe some programs not ordinarily thought of as social marketing, for example, the "Click It or Ticket" seat belt enforcement program (*86*).

Social marketing basically involves the application of commercial marketing strategies to the promotion of social goals—selling health behavior. Its concepts, methods, and terminology are drawn from the marketing literature. It is a consumer-driven strategy, based on the perceived wants and needs of the target audience, and requiring considerable information on characteristics of the target audience (*87, 88*). Maibach and Holtgrave (*6*) attribute its attractiveness to the fact that it is consumer driven; in contrast with traditional, paternalistic approaches to public health; and takes into account the self-interested perspective of the target group. The idea is to create benefits and reduce barriers that matter to a specific group. This involves not so much an attempt to change people as to build an offering around their wishes, based on the notion that there is competition among behaviors. As Smith (*86,* page 39) elucidates, "Perhaps social marketing's principal contribution to social change is the notion that voluntary human behavior is achieved through an exchange of value. It argues that people change not only because they are well informed or forced into action, but also because they get something in return. The process of behavior change in social marketing attempts to reduce the cost and increase the benefits of the new behavior."

Social marketing has its critics. For example, Job (*23*) argues that little can be expected from social marketing in the health area, because in com-

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mercial marketing, already existing motivations need to be channeled, whereas in attempting to change health behavior—for example, to encourage proper driving—the motivation must be induced as well as channeled.

In simplest terms, social marketing is an approach for developing consumer-oriented programs. It makes extensive use of mass media and behavior change principles in delivering the message. The term "social marketing" is in vogue in the highway safety field and is used to describe a wide variety of public information efforts, some of which have little to do with social marketing. In practice, social marketing is a highly sophisticated behavior change program, involving a carefully profiled and segmented audience, based on demographics, geography, psychographics, and behavioral variables; consumer testing and feedback; and carefully honed messages—often innovative and creative—intended to resonate with the target audience. Incorporating these elements to the extent possible will benefit any program designed to persuade people to change their behavior. The social marketing movement has led to increased sophistication in the design and execution of behavior change programs, whether or not those programs use social marketing jargon. One example of its use in the highway safety field has been in increasing the use of alternative transportation by young, male bar patrons (*89*).

DISCUSSION

PI & E programs have been used extensively in the highway safety field. What is their appropriate role and what should be done to maximize their impact? Many programs have been of poor quality. These include mass media programs that are short term and simplistic—basically, exhorting people to take some recommended action—and education programs based on lecture format, without any behavior change theory. Such programs may reinforce social values, but they are unlikely to affect individual behavior. Highway safety education programs are only beginning to adopt modern behavior change principles that have been used in other health education areas. Thus, high-quality PI & E programs are one goal.

Used alone, even high-quality programs have had little success in changing individual behavior. An exception is when they have been used to promote "new knowledge"; for example, putting children in rear seats to avoid air bag inflation dangers. PI & E programs best contribute to behavior change and play an essential role when combined with other ongoing prevention activities, in support of law enforcement, or as one element of broader-based community programs. There are unrealized opportunities in the highway safety field to use some of the techniques that have proved successful in other health areas, such as resistance skills training and integrating driver education programs addressing skills, motivations, and attitudes with broader-based programs involving parents, police, and teen peers.

Notably, even when PI & E programs contribute to individual behavior change, the effects are typically modest and not necessarily long lasting. Moreover, many successful behavior change programs are one-time events applied to a single community or other discrete population, which limits effects. This contrasts with policy-level changes (such as taxes, laws, and environmental changes) that once instituted apply permanently to wider populations. Money allocated to PI & E programs should be spent on those likely to contribute to individual behavior change, but PI & E programs also have a critically important role in promoting effective policies that have permanent effects on the population as a whole.

CONCLUSIONS

Never assume that a PI & E program will be successful. In fact, most PI & E programs do not lead to a measurable reduction in crashes or injuries.

Never assume that a PI & E program will do no harm. Some well-meaning educational programs, albeit a very few, actually lead to more crashes and injuries. Moreover, the implementation of a program that does not work will limit the amount of resources available for programs that can make a difference.

Too often, PI & E programs have been implemented on the naïve assumption that merely urging people to adopt health-enhancing behaviors for their own good will lead them to do so. We now have substantial research and evaluation evidence to indicate that this approach will fail, although it allows program organizers to think that they are dealing with the problem and to take credit for doing so. Rather, we should implement only those programs that follow the research evidence with regard to unsuccessful versus successful PI & E programs.

Characteristics of unsuccessful programs include the following:

- Passive messaging that is communicated by signs, pamphlets, brochures, and buttons.

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- Slogans that give simple exhortations for people to behave in certain ways to avoid undesirable outcomes.
- Education programs that are lecture-oriented, information-only in nature.
- Short-term programs that have low-intensity messages.
- Use of extreme fear or scare techniques, especially when directed at adolescents. Fear messages are given without communication of concrete steps that can be taken to avoid the danger.

Here are some characteristics of successful programs:

- Public information programs that involve careful pre-testing of messages, delineation of the target group, and making sure the messages reach the target group.
- Longer-term programs that deliver the messages in sufficient intensity over time.
- Public information programs that communicate health knowledge not previously well known.
- Public information implemented in conjunction with other ongoing prevention activities—for example, in combination with law enforcement programs—publicizing the enforcement presence and results of the enforcement.
- Public information and education included as part of broader-based, longer-term community programs.
- Education programs based on behavior change models, using interactive methods to teach skills to resist social influences through role playing, behavior rehearsal, and group discussion.
- Fear messages combined with concrete steps people can take to avoid the danger.

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