

Impact of Public Service Advertising: Research Evidence and Effective Strategies

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The purpose of this paper is to review the research measuring effects of media-based health communication campaigns, to determine the degree of impact of campaigns on health behaviors, and identify promising strategies for increasing campaign effectiveness. The paper is organized into the following sections:

- **Historical Background:** Trends in health campaign dissemination and impact
- **Review of Recent Health Campaigns:** Prevention, cessation, and adoption campaigns
- **Degree of Campaign Impact:** Effects of media on various levels and types of outcomes
- **Three Types of Campaign Messages:** Role of awareness, instruction, and persuasion
- **Qualitative Factors in Message Design:** Effectiveness of incentives, sources, and styles
- **Audience Segmentation and Targeting:** Focal individuals, influencers, and policy-makers
- **Channels in the Media Mix:** Channel features and promising low cost modes
- **Quantitative Dissemination Factors:** Volume, prominence, scheduling, and duration
- **Why Campaigns Fail:** Audience resistance and ineffective strategies
- **Conclusion:** Key pathways of media influence and guidelines for campaign design

Historical Background

Over the past half-century, thousands of mass media campaigns have disseminated messages about dozens of different health topics to the U.S. population. Numerous government agencies and health associations have sought to educate and persuade the public to adopt healthy practices or to avoid behaviors that pose a risk to health. Under their public service obligation, the broadcast media have provided free slots for health PSAs; some newspapers and magazines have felt the responsibility to allocate free space for print messages. The Advertising Council has

served a coordinating function in assisting certain campaigns to achieve these placements, while other national and local organizations have directly approached media outlets to gain cooperation. As pro bono space and time has declined over the past two decades, both governmental and association sponsors of health campaigns have increasingly relied on paid ads to gain more frequent and prominent placement of health messages.

Researchers have examined effects of numerous public communication campaigns, beginning with the classic campaign to teach Cincinnati residents about the United Nations (Star and Hughes, 1950). That study showed that a heavy flow of multimedia messages produced almost no knowledge gain or affective change. Combined with other scientific studies of media impact during the 1940s, such as the apparent minimal influence of political persuasion in presidential campaigns, a pessimistic outlook developed regarding the likely effectiveness of information campaigns. A “null effects” perspective became dominant in the 1950s in academic circles, especially among sociologists and psychologists who contended that audience members are often highly resistant to mediated messages because of apathy, attitudinal defensiveness, and cognitive ineptness; further, it was felt that interpersonal influences outweigh and overcome mass media inputs (Hyman and Sheatsley, 1947; Klapper, 1960; Bauer, 1964). Article titles such as “Some Reasons Why Information Campaigns Fail” and “The Obstinate Audience” reflect this pessimism.

A more optimistic perspective developed among mass communication researchers in the 1970’s. The revisionist interpretation held that media campaigns can be moderately successful under certain conditions; the key issues involve defining criteria for success, distinguishing various types of effects, and identifying the maximizing conditions for impact (Mendelsohn, 1973; Atkin, 1981). This is reflected by article titles such as “Some Reasons Why Information Campaigns Can Succeed.”

In the health communication domain, the landmark campaign that contributed to the optimistic perspective was the Stanford heart disease prevention project in the early 1970’s (Farquhar et al., 1977). The evidence showed substantial improvement in cardiovascular risk factors in communities receiving an intensive media campaign. The successful use of mass media messages in the Stanford project vividly demonstrated the potential of media health campaigns in influencing important health behaviors. This campaign provided a major impetus for generating subsequent community intervention projects featuring a central media component.

Over the past two decades, scientists studying effects of public communication campaigns, particularly in the health domain, can be grouped into two divergent camps. On the conservative side are the neo-null effects proponents who adhere to the view that the media are largely impotent for most purposes.

On the more positive side are the academics and practitioners who hold that the media are potentially influential, especially if a campaign is properly designed and effects are sensitively measured and interpreted. This latter camp acknowledges that powerful and impressive effects are unlikely, and that the impact on behavioral outcomes is often limited. Rather than concentrating on the array of factors that limit effectiveness, they have searched for improved

strategies to overcome the barriers, to pragmatically utilize the strengths of media channels, and to use indirect pathways of influence.

The prevalence of health campaigning has steadily increased over the past 50 years. Very few campaigns were disseminated via media channels in the 1950's. The major campaign topic of the 1960's was smoking, with extensive news media publicity in the mid-60's and a major national PSA campaign on television later in the decade. In the 1970's to early 80's, heart disease campaigns were tested in several locales. Several major national campaigns occurred during the 1980's: drunk driving, safety belts, drugs, and AIDS. With greater availability of funds, the 1990's were characterized by paid messages about drugs, smoking, AIDS, and alcohol. During the past 10 years, access to free media placements diminished significantly.

Review of Recent Health Campaigns

More than 100 health campaigns have been evaluated and reported in the research literature. This review summarizes the key findings for all major campaigns from the last decade which feature a significant mass media component. In addition, selected campaigns from earlier decades are briefly described. The studies are organized into three primary categories, based on the nature of the intended outcome of the campaign:

- **Prevention** of initiation of an unhealthy practice (e.g., tobacco and drug use by youth)
- **Cessation** of an existing unhealthy practice (e.g., smoking, drunk driving)
- **Adoption** of a healthy practice (e.g., condom use, nutritious food consumption)

Snyder et al. (2000) performed a meta analysis of the degree of behavioral impact across a subset of 48 media health campaigns (measuring responses of almost 170,000 participants), typically comparing treatment communities with control communities or exposed vs. non-exposed audiences. On the average, behavior change occurs among approximately 7% to 10% more of the people in the campaign sites than those in control communities.

The effects are stronger for adoption of a new behavior (average 12% adopting practices such as exercise, condom use, dental care) than cessation of current habits (average 5% ceasing practices such as smoking, binge drinking, risky sex). Campaigns promoting health services achieved modest impact (average 7% for using services such as cancer screening or hypertension treatment).

Across all of these campaigns, the level of exposure to media messages averages about 40% of the target audiences. The size of effects is much greater in communities where higher exposure is achieved.

PREVENTION CAMPAIGNS

Tobacco. A major smoking prevention project compared the effects of school-based programs with and without a mass media supplement. The intervention began when students were in late elementary school, and continued for four years; the school plus media campaign was much more effective in preventing smoking than school programs alone (Flynn et al., 1992). Testing two years later when students were in high school showed that the impact persisted over time (Flynn et al., 1994). In the communities with school plus media, cigarette consumption was less than two-thirds as widespread as the school-only communities. For example, weekly smoking was found among 24% of the students receiving the school programs vs. 16% of students receiving school programs plus media campaign. Several other school-based smoking prevention projects have demonstrated similar contributions of media supplementation (Perry et al., 1992; Bauman et al., 1989; Bauman et al., 1991).

In the late 1980's, Minnesota carried out the first statewide mass media anti-smoking campaign targeted to youth, featuring paid and donated ads disseminated via TV, radio, and newspapers and billboards (Murray, Prokhorov, & Harty, 1994). The messages focused on negative social consequences (bad breath, smelly clothes) and normative expectations, rather than health threats. After three years, statewide surveys showed that adolescents were heavily exposed to the campaign ads (average = 50 times per year); moreover, exposure rates to anti-smoking were about 10% to 30% higher in Minnesota than in the comparison state of Wisconsin.

Nevertheless, there was no significant impact on smoking-related beliefs or smoking behavior among Minnesota adolescents relative to Wisconsin adolescents. Similar findings were reported by Bauman et al. (1991), who found no change in adolescent smoking following a media campaign in southeastern states.

In a review of comprehensive media-based anti-smoking campaigns implemented in five states, Wakefield and Chaloupka (2000) concluded that teenagers displayed high levels of exposure to and recall of paid advertising, and general improvement in beliefs and attitudes. The campaigns in California, Massachusetts, and Florida were judged to be effective in reducing the prevalence of teenage smoking, while initial findings in Oregon found no change after two years (the data from Arizona are not yet available). At the community level, the campaigns also lead to an increase in passage of local ordinances restricting cigarette sales to youth and providing smoke-free environments. These policy initiatives, along with an increase in tobacco taxes, combined with the media campaigns to produce the reduction in teenage smoking.

The most intensive statewide anti-smoking campaigns have been carried out in California, where the state spent \$26 million in the early 1990's, primarily for paid TV and radio spots and outdoor ads (supplemented by unpaid publicity generated by public relations firms). Popham et al (1993) reported that half of the state's youth and two-fifths of adults could recall one or more broadcast messages.

The California campaign began about a year after the state increased the cigarette tax by 25 cents per pack (and during a period when anti-smoking ordinances became fairly widespread).

One method for tracing the impact of the campaign and the tax hike is econometric analysis of factors related to cigarette sales figures.

Hu, Sung, and Keeler (1995) found that the California media campaign accounted for a 2-3% lower level of cigarette sales; they estimated a total reduction of 232 million packs during the two-and-one-half year period studied. The researchers also concluded that the higher tax produced a far stronger impact on sales, with a reduction of 1.3 billion packs.

Although the magnitude of the anti-smoking media campaign impact seems small (especially considering that changes in taxation and ordinances created a favorable context), it is noteworthy that a per capita investment of about \$1 in media messages is shown to reduce per capita sales by 7.7 packs.

Another major statewide antismoking media campaign occurred in Massachusetts during the mid-1990's. More than half-million dollars for TV spots in 1993, and the campaign also featured radio ads and billboards. Siegel and Biener (2000) measured a panel of adolescents one year after the campaign began and again four years later. In the 1994 survey, 71% had been exposed to the TV spots, 57% to billboards, and 33% to radio. Among the original 12-13 year old cohort, 25% had progressed to established smokers four years later; those with baseline exposure to TV spots were half as likely to have taken up smoking; those exposed to radio and billboards were slightly less likely to be smokers.

The state of Florida has recently conducted an aggressive teenage prevention campaign, featuring counter-advertising messages in paid media channels. According to initial reports, exposure and recognition is very widespread, attitudes have improved, and there has been a 19% decline in smoking among middle school students and an 8% decline among high school students (Zucker et al., 2000).

Drugs. Although anti-drug campaigns have been the most prevalent type of mass media health campaigning over the past 15 years, there is surprisingly little published research assessing the impact on audience beliefs, attitudes, and behavior. The massive Partnership for a Drug Free America campaign has disseminated more than \$3 billion worth of TV and print messages since 1987, and Congress appropriated \$1 billion for a five-year campaign beginning in 1998.

Donohue and his colleagues have focused on the targeting factor of sensation-seeking. Youth who have a high need for sensation and arousal in their lives are much more likely to use drugs and to prefer highly stimulating TV messages (novel format, extreme close-ups, frequent editing cuts, fast-paced movement, sound effects, intense music, and suspenseful dramatic portrayals). Matching message type with target audience personality, the high-sensation anti-drug messages are more effective with high sensation-seekers, whereas less intense messages work better with low sensation-seekers (Donohue, Lorch and Palmgreen, 1991; Everett and Palmgreen, 1995).

This research team conducted a field experiment in a pair of medium-sized cities using paid placement of anti-marijuana TV spots (Stephenson et al, 1999). The series of spots emphasized negative consequences of smoking marijuana: lung damage, sickness, decreased motivation,

lower grades, legal trouble, diminished coordination, troubled relationships, and psychological and physical dependence. The four-month campaign in the treatment city presented the spots 20 times per day on channels and programs favored by sensation-seekers (the project bought 750 time slots, and the stations donated time for an additional 1,250 placements).

During the eight-month period following the campaign, the 8th-12th grade students in both the treatment and control cities formed stronger pro-marijuana beliefs, more positive attitudes, and greater intentions to use the drug. Immediately after the campaign, the pro-marijuana orientations were actually higher in the treatment city. In the subsequent eight months, the gains on most measures were slightly smaller in the treatment city than the control city, indicating that the campaign served to slow the pro-marijuana trends occurring among high sensation seekers at these age levels.

One year later, another four-month campaign was carried out both communities. In the original treatment community, the upward trend in monthly marijuana use resumed about six months after the end of the first campaign; this was reversed by the follow-up “booster” campaign (Palmgreen, Donohue and Grant, 2000). The trends in monthly marijuana use among high sensation seekers in original control city are noteworthy: use had increased from 17% to 33% during the 20 months prior to the campaign, and then decreased to 24% during the campaign and for eight months afterwards.

Violence. Anti-violence campaigns became relatively frequent on television in the 1990’s as concern over youth violence increased. Public service spots were produced by the major broadcast networks and youth-oriented cable channels such as MTV, Nickelodeon, and HBO. Borzekowski and Poussaint (1999) showed four of these anti-violence TV spots to samples of urban, suburban, and rural teenagers, and measured credibility, interest, understanding, and perceived effectiveness. The researchers detected diverse reactions to the messages, based on demographic characteristics (gender, ethnicity, geography) and personal background (knowledge, attitudes, and experiences with violence). They stress the importance of adjusting message content and style to specific target audiences of media campaigns.

CESSATION CAMPAIGNS

Drunk Driving. The prevalence of drunk driving has decreased substantially over the past two decades, coinciding with a major emphasis on this problem in the news media as well as periodically heavy public service message dissemination (particularly in the mid-1980’s). Yanovitsky and Bennett (1999) tracked the amount of media attention to the issue between 1978 and 1996, and examined how this related to changes in federal legislation and the incidence of drunk driving. In a time-series analysis, they found that the media produced a strong direct effect on drunk driving policy which in turn lead to a decrease in drunk driving. Most of the impact of media coverage on drunk driving occurred indirectly via legislative changes. This finding is consistent with other studies showing a minimal direct impact of the media on drunk driving (DeJong & Hingson, 1998; Haskins, 1985; Vingilis & Coultres, 1990). The only notable evidence of media effects in reducing drunk driving comes from programs that used media messages in conjunction with rigorous enforcement initiatives (Holder, 1994; Mercer, 1985).

Unsafe Gay Sex. The Mpowerment Project was an HIV prevention campaign in a midsized community focusing on changing risky behaviors among young gay men (Kegeles, Hays and Coates, 1996). The primary intervention involved an intensive interpersonal outreach mobilization where young gay men contacted their peers and encouraged them to engage in safer sex and to participate in social and educational programs sponsored by the project. This was supplemented by a small scale publicity campaign featuring articles and ads in the gay newspaper and materials distributed at sites frequented by the target audience. Following the eight-month intervention, the proportion of men engaging in unprotected anal intercourse decreased from 41% to 30%; sex with nonprimary partners dropped in half from 20% to 11%.

The impact of the campaign appears to be primarily due to the peer outreach communication rather than the media component. This study indicates that campaigns aiming to change fundamental HIV-related sexual practices can achieve success, but that an intensive interpersonal effort is the central influence while the media play only a contributing role.

Smokeless Tobacco. In rural Nebraska, a quit-chew media campaign featured TV, radio, newspaper, and paid billboard messages. The campaign generated about 200 calls from smokeless tobacco users to a helpline that provided quitting resources (Boyle et al., 1999). A survey one year later found that half of those receiving a quit kit had attempted to quit, and one-tenth had actually quit. Although this is a sparsely populated area, the number of quitters is a relatively small proportion of the overall target audience for the campaign.

Cigarette Smoking. The most comprehensive smoking cessation campaign was the COMMIT project, sponsored by the National Cancer Institute. From 1989 to 1992, community-based interventions were mounted in 11 small to medium size cities. Although most of the efforts were centered in local organizations (work-sites, health care, and religious), media messages comprised a major component of the campaign.

The results of the four-year project indicate an extremely limited impact in the intervention communities vs. a matched set of 11 comparison communities. Smoking prevalence declined approximately 3 percentage points (from 25% at the baseline to 22% five years later), but the decline was almost as large in the comparison communities (2.7 points) and there was no difference for heavy smokers (COMMIT Research Group, 1992b). The quit rates (cessation maintained for at least six months) were 27% in the intervention sites vs. 25% in the comparison sites; almost all of this modest difference is due to higher quit rates among light to moderate smokers rather than heavy smokers (COMMIT Research Group, 1992b). The media component seems to have played a negligible role; indeed, message exposure was only marginally higher in the intervention vs. comparison sites (7.7 vs. 7.6 on a 0-16 scale).

The COMMIT project leaders assert that four years of cessation promotion may have been too short to produce a substantial impact, and that the intervention may not have been sufficiently intensive. They also point out that media coverage and public education was substantial in all locales during the period of the project, leaving little potential for additional effects due to the COMMIT efforts. Thus, the modest overall decrease in adult smoking prevalence and the impressive quit rates in both intervention and comparison communities may

be partially attributable to the fairly widespread media publicity and anti-smoking messages that were being disseminated throughout American society during this time period.

In the early 1990's, the statewide anti-tobacco media campaign in California used paid TV and radio spots, billboards, and print ads to promote cessation. In a special subsample of smokers who had quit during the period of the campaign, 34% indicated that the campaign ads had played a role in their quit decision. This figure was obtained with a direct question that referred to the ads; in an earlier open-end question about the reasons for quitting, 7% cited the anti-smoking ads as a key factor prompting their decision (Popham et al., 1993).

In a pair of narrowly-targeted California anti-smoking campaigns, messages were disseminated to Vietnamese-Americans. In San Francisco, the more elaborate campaign involved an array of Vietnamese-language messages: paid counterads on TV, billboards and newspapers, as well as articles in newspapers and a TV program over a two-year period (Jenkins et al., 1997). Smoking in the Vietnamese-American sample declined from 36% to 34% and quitting during the prior two years increased from 7% to 10%. Compared to a control city, there net changes of +3.5 points for smoking and +1.4% for quitting. By contrast, a parallel campaign in an adjoining county showed no effect (McPhee, Jenkins, and Wong, 1995).

Smoking Cessation Hotline Calling. In a typical year, between 15 and 20 million smokers quit for at least one day, but the success rate is slightly less than 10%. Because smokers who participate in cessation programs have a success rate of 20% to 40%, the National Cancer Institute's Cancer Information Service instituted a helpline that provides a telephone counseling and referral to cessation programs. In the initial years of the counseling and referral service during the 1980's, CIS telephone line received about 50,000 smoking-related calls per year.

Promoting a helpline was expected to convert quitting intentions into immediate action. Pierce et al. (1992) tracked the relationship between monthly call rates and placement of three TV PSA's that promoted the helpline. They concluded that the time periods when these spots received relatively high frequency of presentation were associated with sharp increases in helpline calls (a two-fold increase for the "Reaching Smokers" spot, a five-fold increase for the "Chained Smoker" spot, and a nine-fold increase for the "Surgeon General" spot). Demographically, the increases were greatest for males, younger smokers, and those who are less educated. However, it should be noted that the peak calling months yielded less than 20,000 calls nationwide, while represents a fraction of 1% of all persons who intend to quit smoking.

The Cancer Information Service has conducted specialized campaigns designed to prompt minority smokers to call the cancer hotline for smoking cessation information and materials. In one elaborate campaign, six radio spots and one TV spot targeted to African-American smokers were placed on black-oriented broadcast stations in seven treatment communities (Boyd et al, 1998). The paid placements during 10 weeks (a six week period in 1994 and a four week period in 1995) attained an estimated reach of about 90% of the target audience.

This campaign produced a sharp increase in the number of calls during the campaign period (from several calls per week to about 80 calls per week in the first phase of the campaign and 40 calls per week in the second phase), and was much higher than in seven matched control control

without the paid campaign. However, the response rate constitutes a very small proportion of the potential audience, with a total of less than 700 calls from the estimated 300,000 African American smokers living in the treatment communities. The radio spots were cited by a larger number of callers than the TV spot.

ADOPTION CAMPAIGNS

Heart Disease. The seminal media-based community health campaign was conducted in the early 1970's by communication and medicine specialists at Stanford University (Farquhar et al., 1977). The Three Community Study sought to reduce risk factors associated with cardiovascular disease by using a comprehensive array of newspaper columns, TV PSA, TV shows, booklets, fliers, and other print messages. Reducing the risk of heart disease involves a combination of behavioral changes, including increased exercise, improved nutrition, weight loss, blood pressure checks and adherence to hypertension medication, and non-smoking.

Compared to a control community, there was a substantial improvement in risk factors in the two small communities featuring the three year media campaign (reduction in cholesterol levels, blood pressure, and smoking). The media interventions were especially effective where behavior change relied on acquisition of new knowledge, such as improved eating habits, and in producing initial behavior changes such as reduced cigarette consumption. Media alone were not sufficient in sustaining difficult behavior change such as smoking cessation, which also required interpersonal communication of skills, self-monitoring, and feedback.

The successful use of mass media messages in the Stanford project vividly demonstrated the potential of media health campaigns in influencing important health behaviors. This campaign provided a major impetus for generating subsequent community intervention projects featuring a central media component.

The promising findings led to a more elaborate Stanford study, the lengthy Five City Project that was conducted in medium-size communities (Farquhar et al, 1990; Flora, 2000). An even greater quantity and variety of messages were disseminated over a five-year period; the researchers estimated that each adult received almost one thousand messages, particularly newspaper columns and TV PSAs. Although there was a reduction in heart disease risk factors in the intervention communities, the degree of sustained behavioral impact was very small.

Designated Driver. The designated driver concept for preventing drunk driving was heavily promoted by the Harvard Alcohol Project in the late 1980's and early 1990's (Winsten, 1994). In cooperation with the Hollywood entertainment industry, designated driver dialogue and portrayals were inserted in 160 TV programs; a substantial quantity of TV PSA's were produced and aired in cooperation with the TV networks. According to a 1988 Gallup poll conducted prior to the campaign, 62% of the public said that they and their friends were using the designated driver arrangement all or most of the time; in a poll one year later, the figure had increased to 72% (Winsten and DeJong, 2000). This represents a sizable increase in a relatively brief period that can only partially be attributed to general societal trends or alternative sources of influence.

Safe Driving. In a classic example of entertainment-education, the National Driver Test television program used a quiz format to successfully promote driving safety. Mendelsohn (1973) reported that this program attracted 30 million viewers, generated over a million letters to the television network, and stimulated thousands to enroll in driver improvement courses. This widespread response was largely attributable to the technique of portraying challenging driving situations and posing questions about alternative coping methods, allowing overconfident drivers to measure their own ability and self-discover if they are really capable of handling each situation.

Safe Water. When the city of Milwaukee experienced an outbreak of a parasitic disease due to lead in the water system, the local government mailed informational pamphlets to residents and generated news coverage in the local newspapers and broadcast stations (Griffin & Dunwoody, 2000). A survey showed that about one-third of the residents relied on TV and on newspapers for tap water lead information, while only one-sixth relied on interpersonal sources and slightly fewer relied on the pamphlets. However, reliance on the mass media was not associated with perceived risk, knowledge about how to protect themselves, and actual preventive behaviors, while reliance on health professionals was mildly associated with these outcomes.

Heart Attack Treatment-Seeking. A major community intervention was conducted to reduce patient delay time from the onset of heart attack symptoms to hospital presentation, and to increase use of Emergency Medical Service (Leupker et al, 2000). In ten communities, informational messages were disseminated extensively over an 18-month period via TV and newspaper stories, TV and radio spots (both PSAs and paid ads), direct mail, billboards, and brochures. Compared to control communities, there was a 20% increase in EMS 911 use, and a substantial gain in awareness of the program name and in knowledge about appropriate actions to perform. However, no difference was found in reduced delay time in seeking treatment at the hospital.

Bone Marrow Testing. For many years, the daytime soap opera *All My Children* has embedded health-related issues such as AIDS, diabetes, and Klinefelter's syndrome into the story lines, sometimes accompanied by a separate PSA at the end of the episode. Klinge & Aune (1994) measured responses to an elaborate theme promoting bone-marrow testing, featuring the lead character modeling the blood test and a PSA delivered by Barbara Bush. In a survey of adults, about one-tenth were exposed to at least some of the focal content; compared to non-exposed respondents, these viewers displayed somewhat greater knowledge about the disease and the testing process, and exhibited greater willingness to be personally tested. Behavioral outcomes were assessed among a small segment of 24 respondents who were fully exposed (seeing the dramatic portrayals and the PSA); two said they had their bone marrow tested and five called an 800 number promoted in the program.

Condom and Bleach Usage. An extensive campaign to combat AIDS was conducted in five major cities from 1991-94, using specialized print media to promote the use of condoms and IV needle bleach (McAlister et al (2000)). The narrow target audiences were hard-to-reach high-risk segments such as IV drug users and their partners, runaway youth, and prostitutes. The campaign employed the "behavioral journalism" approach utilizing journalistic formats to present stories

about “peers” (role models with backgrounds similar to the target audience) who had successfully performed the desired behavior. The messages were printed in newsletters that were hand distributed and personally reinforced by networks of trained peer volunteers and outreach workers.

This method of dissemination attained high penetration rates for the target audiences in the five sites, averaging 50% reach and five or six exposures per person reached. Compared to unexposed individuals, those exposed to the newsletters much more likely use condoms or bleach, and to exhibit higher self-efficacy, hold more positive attitudes, and perceive wider pro-use social norms. The differences increased according to frequency of exposure. For example, condom use with nonmain partners was 27% in the unexposed comparison group, 38% among those exposed to 3-10 messages, and 42% among those exposed to more than 10 messages.

The researchers also reported that about one-third of the samples were exposed to AIDS prevention messages on TV and radio. It appears that these messages had little impact on behavior, as the rate of condom use was no higher than for the comparison groups.

Several community studies of HIV prevention programs have shown that print media messages contribute to higher levels of condom use and bleach use to clean IV needles (MMWR, 1996; Santelli et al., 1995). In one project promoting condom use to young urban women at risk for HIV infection, the campaign disseminated print materials (flyers, pamphlets, and posters) featuring various “role model” stories (Walls et al., 1998). The print campaign reached half of the target audience, although it achieved less penetration among the subset at greatest risk such as drug users and sex workers (outreach workers were required to contact this segment that is least integrated into the community). Exposure to the print media messages significantly increased communication with a main partner about condom use, and increased condom use among employed women over age 21 who had ever had an STD.

A teenage-targeted HIV prevention program in the Seattle area utilized a media campaign and enhanced condom distribution (Alstead et al., 1999). Although surveys showed that three-quarters of the sexually active target audience was exposed to the condom campaign, levels of sexual activity remained stable during the campaign period.

Milk Consumption. Per capita milk consumption dropped almost 25% in the 1970’s and 1980’s (Butler, 2000). Congress established a milk promotion program under the aegis of the U.S. Department of Agriculture, which led to the “Milk. Where’s Your Mustache?” campaign. The companion “Got Milk” campaign was developed by the California Milk Processor Board. The campaign emphasized the calcium and other nutrients in lower fat milk products with magazine and TV ads budgeted at more than \$100 million per year in the late 1990’s. The first year of the campaign produced a moderate (+15%) gain in beliefs that milk can be low in fat and that skim milk can be high in calcium and high in vitamins and minerals. According to econometric analyses, a slightly greater amount of milk was sold than would have been the case without the advertising (+3%).

At the local level, a pair of “1% or Less” dietary campaigns encouraged West Virginia adults to consume low-fat milk instead of whole milk or 2% milk. Rather than comprehensively

promoting the full array of changes in dietary, exercise, and smoking habits related to heart disease risk, the state health agency focused on the simple and easily communicated concept of drinking low-fat milk. The first intervention involved an elaborate combination of paid ads, public relations publicity, and community outreach in schools, worksites, service organizations and supermarkets in one West Virginia locale. Surveys indicated that 38% of high-fat milk drinkers reported switching to low-fat milk, and sales figures showed that low-fat purchases more than doubled from 18% to 41% of all milk sales, and the figure was 35% in a follow-up measurement six months later (Reger, Wootan, and Booth-Butterfield, 1998a).

A second intervention in a different community sought to determine the effectiveness of a media-only campaign (Reger, Wootan, and Booth-Butterfield, 1998a). Over a six-week period, more than 250 “1% or Less” commercials were placed on broadcast and cable television, along with several newspaper ads; there were no community programs to supplement the media. Press conferences and milk taste test events generated 25 news and feature stories on TV, radio and newspapers. The messages vividly demonstrated the high fat content of whole milk and 2% milk, and advocated a switch to low-fat milk in order to reduce LDL cholesterol levels.

Both TV ads and news stories reached more than 80% of the adults surveyed after the campaign, and radio ads were heard by almost half of the sample. The survey found that 34% of high-fat milk drinkers switched to low-fat milk; the switching rate was similar across all demographic segments, but almost all of the change occurred among those who had been drinking 2% milk rather than whole milk. Low-fat milk sales increased from 29% to 46% immediately after the campaign, and the six-month follow-up figure was 42%.

The “1% or Less” campaign findings demonstrate that a fairly low-cost paid advertising and public relations can produce a dramatic impact on a specific dietary habit that requires relatively little sacrifice on the part of the product consumer.

Helmet Use. In a two-year community campaign to promote use of bicycle helmets, a multifaceted approach combined newspaper and television publicity with deeply discounted helmet prices, elementary school curriculum units, and bike rodeos (Rouzier and Alto, 1995). Observations of child and adult helmet use showed an increase from the baseline of 10% to a rate of 21% after one year and 37% after two years. A total of 6,400 helmets were sold in the community of 76,000. Although it’s difficult to isolate the contribution of the media component, the evidence shows that the combination of reduced costs, educational programs, and news publicity can produce very large increases in this safe biking practice.

LEARNING FROM HEALTH CAMPAIGNS

In addition to studies of campaigns that attempt to change behavior, some research has examined the amount of knowledge gained by media audiences:

Learning about AIDS. At the height of the AIDS awareness campaigns in the late 1980’s, messages were disseminated in great volume via all media channels. Engleberg, Flora, and Nass (1995) analyzed results from CDC surveys which asked about sources of AIDS information.

Adults using print media (newspapers, magazines, brochures) scored slightly higher on AIDS knowledge scales, compared to those with less exposure to these high-involvement channels. By contrast, those using the low-involvement TV and radio channels had no more knowledge than non-exposed respondents. Print media use was also associated with interpersonal discussions of AIDS. Behaviors related to prevention and treatment were not measured.

A key high-risk target audience for AIDS prevention campaigns has been IV drug users, who are predominantly lower-income urban males. A Baltimore sample of African-American IV drug users was surveyed in 1989-1990, when news publicity and broadcast spots were being widely disseminated (Jason et al., 1993). Television was the primary source of AIDS information: 48% reported that they first learned about AIDS from TV, 47% said that TV is where they have learned the most AIDS information, and 53% cited TV as their leading current source of new information. Newspapers were mentioned as a source by about 10% of the IV drug users. The media are more widely used for AIDS information than interpersonal sources such as outreach workers, drug treatment personnel, and friends, which were cited by about 30%.

Importance of AIDS. Researchers have seldom tested the impact of individual public service spots under realistic field conditions. One experiment was conducted using two television PSAs from the “America Responds to AIDS” campaign (Siska et al., 1992). In two TV markets, the spots were placed on the late night newscast of one station (two spots per night for three nights). Individuals were recruited to watch either the station carrying the AIDS messages or a second station that did not carry the PSAs. In the experimental groups that were assigned to watch the newscasts featuring the AIDS messages in both sites, the proportion citing AIDS as an important issue increased from 15% at baseline to 24% following the broadcasts; there was no change in the control groups that did not see the spots. This study demonstrates that exposure to several TV PSAs can temporarily heighten the perceived importance of a health issue to a substantial degree.

Learning about Nutrition and Infant Mortality. In the District of Columbia, the Healthy Start Project used outdoor public service messages to educate young mothers about infant mortality issues, especially the importance of nutrition (Hatcher, Alexander, and Abrar, 1998). The campaign organization obtained free placement of posters on backlit dioramas at 10 metroraill stations and on 50 busses. More than three subway million riders passed by the station displays each month, and many others saw the bus signs. Informal indicators suggest that the campaign was effective in prompting the focal audience to seek information, and in heightening awareness of the problem among government workers and officials. Although the project was not evaluated using formal design and quantitative measurement, the outdoor poster campaign appears to have achieved some success at a very low cost.

Learning about Venereal Diseases. In a pioneering entertainment-education assessment, Greenberg and Gantz (1973, 2000) assessed the impact of the PBS program “VD Blues.” Survey and experimental data indicates that the program caused viewers to feel substantially more informed and increased their perceived seriousness of the problem. Actual knowledge levels of viewers were also higher, particularly knowing the modes of VD transmission and the best cure.

Learning about Folic Acid. A community campaign in Virginia featuring locally-produced TV and radio PSAs (supplemented by news publicity, newspaper ads, and billboards) sought to raise awareness about the need for women of childbearing age to consume the B vitamin folic acid to decrease their risk of birth defects such as spina bifida (Broome, 1999). When asked if they had “heard about the benefits of folic acid”, reported awareness increased from 31% precampaign to 54% at the end of the year-long campaign to 75% one year later. Actual knowledge levels increased slightly. Women who had heard of folic acid cited television and health-care providers as the two leading sources of information.

Learning about Drugs. In an early field experiment carried out over a one-month period, radio spot campaigns were designed to make adolescents aware of drug information sources that they could contact for further consultation. Although several PSAs were aired each day, youth in the experimental town were no more likely to perceive more messages about the topic, and did not identify more clinics, help centers, or doctor sources of information (Morrison, Kline, & Miller, 1976).

Subjective Effects of Health PSAs. A few investigators have asked respondents to give self-reports regarding the perceived impact of public service messages. A study by Henriksen and Flora (1999) found that children believed that anti-smoking ads have greater influence on themselves than other children; by contrast, children believed that cigarette advertisements influence others more than themselves. Two other studies indicate that certain AIDS and drunk driving campaign messages are also perceived as having more impact on self than others (Duck and Mullin, 1995; Duck et al., 1995). The evidence showing relatively greater subjective impact on self is the opposite of the usual findings in research examining the “third-person effect”; for most types of mass media content, people tend to believe than others are more influenced than self.

Degree of Campaign Impact

The preponderance of the evidence shows that media public service campaigns have only limited direct and immediate effects on most health behaviors. A recent meta analysis across 48 studies of comprehensive community-based campaigns shows that the media contribute to a 5-10% change in behavior (Snyder, 2000). While a small increase in market share is considered successful in commercial advertising campaigns, it’s often disappointing to health campaigners and their sponsors.

While few studies show major improvement in behavioral outcomes, it is important to note that many focal behaviors are complex, deeply rooted, or socially supported, and that relatively few in the audience are in a state of readiness for change on those behavioral domains. On the other hand, cognitions (awareness, knowledge, beliefs) tend to be easier to learn, and this impact does not vary widely across the domains of health behavior.

Even though health campaign effects are typically restricted to a small fraction of the total potential audience, the sizable number of people that are reached by the media means that thousands or even millions of individuals can be influenced to perform the healthy behavior.

Nevertheless, effects may unfold indirectly and gradually as messages increase knowledge, stimulate information seeking and interpersonal discussion, and move individuals through early stages of decision-making.

The magnitude of direct effects depends on the type of outcome and the receptivity of various audience segments. *Outcomes* can be arrayed along a continuum according to “degree of difficulty” of influencing the individual’s cognitive, affective, or behavioral orientations:

- At the cognitive level of the response hierarchy, superficial Awareness is relatively easy to create, while other forms of learning such as Knowledge gain and Skills acquisition are somewhat more difficult to achieve with campaign messages.
- At the affective level, there are a variety of orientations that tend to be progressively harder to influence: Beliefs (including Images, Perceived norms, Expectancies of positive and negative outcomes), Involvement (Salience, Interest), Values, Attitudes, and Behavioral Intentions.
- At end of the hierarchy, Behaviors can range from minor actions to major practices; the latter is the gold standard that is most difficult to change and maintain. Moreover, behavioral practices vary substantially across the diverse array of health domains.

The degree of *receptivity* of the message receivers is based on their predispositions toward the health topic and the promoted behavior. Audience readiness for change varies substantially across behavioral domains. In some cases, many individuals in the focal segment already have a high degree of concern, a favorable attitude or an appropriate behavioral intention; they are predisposed to respond to the campaign in the intended direction. In other cases, most of the receivers are resistant or indifferent to the messages, so there is a minimal likelihood that they will be influenced.

The central determinant of receptive vs. resistant responses is the *benefit-cost* ratio of the particular behavior being promoted or discouraged in the campaign. A parallel can be drawn to advertising campaigns in the commercial sector: some products are easy to promote because the value is compelling (wonderful product at a low price), while others are a tough sell because the product has little benefit or excessive cost. Health behaviors vary on the same two factors:

- Target behaviors can be arrayed along a continuum according to the degree of effort, time, money, psychological and social costs. Here are several examples of low-cost minor actions: switching from whole milk to low-fat milk, visiting a doctor for cancer screening, joining an athletic club, briefly delaying initial experimentation with drugs, and limiting alcohol consumption to two drinks before driving. High-cost behaviors that require major expenditures or sacrifices include cessation of tobacco use, practicing sexual abstinence, avoiding all drinking until age 21, and exercising vigorously six days per week.
- The behavioral “product” also varies considerably on the benefit side of the equation. There are enormous advantages of adopting or avoiding certain practices, while only a weak case can be advanced for other behaviors. High-benefit practices such as safe sex or non-smoking

lead to numerous positive consequences (e.g., improved physical health, monetary savings, psychological security, moral virtue, social attractiveness).

Thus, the effectiveness of public service advertising depends not only on the quantity and quality of campaign messages, but on the difficulty of achieving the intended outcome and the receptivity of the audience to the health behavior being promoted. For example, minimal effects are to be expected in a campaign promoting alcohol abstinence for college freshmen, because this type of behavioral outcome is hard to attain and because the sacrifice outweighs the advantages for many students. On the other hand, greater success is anticipated for a campaign promoting heroin abstinence for seventh graders or a campaign seeking to simply inform college freshmen about the ethanol equivalency of a shot of liquor vs. a glass of beer.

Three Types of Campaign Messages

Depending on the most promising mechanisms of influence, campaigns utilize three basic communication processes by which messages move the target audience toward the desired response: awareness, instruction, and persuasion. The relative emphasis on the three types of messages will vary at different points of the campaign and for different target audiences, because the pathways to impact depend on the existing pattern of knowledge and attitudes of the audience.

AWARENESS MESSAGES

Most campaigns present messages that attempt to increase awareness: raising consciousness about the health topic and informing people what to do, specifying who should do it, and cuing them about when and where it should be done. These messages may be designed to achieve the following objectives:

- create recognition of the topic or practice for a large portion of the public
- convey the impression that the health problem is important
- impart simple forms of new information about the health topic
- trigger activation among favorably predisposed audiences
- foster compliance with interpersonal influences or environmental forces by focal segments
- stimulate interpersonal communication in informal networks
- encourage further information-seeking about the topic
- sensitize individuals to subsequently-encountered extra-campaign messages

Compared to changing bottom-line outcomes such as fundamental behavioral practices, most of these awareness-related outcomes are more readily influenced through mass media channels. Initial impact on knowledge gain, interpersonal communication, or trial acts may eventually contribute to behavior change. The last two outcomes, information-seeking and sensitization, have considerable potential to advance the change process; these will be discussed in detail:

Information-Seeking. Campaign messages that have the broadest reach can deliver only a superficial amount of informational and persuasive content that is seldom customized to the individual recipient. The conventional mass media are inherently a somewhat crude tool for health campaigns because of targeting imprecision and depth limitations that restrict the presentation of multiple appeals, elaborate evidence and detailed instruction. To overcome these shortcomings, campaigners should stimulate the audience to seek out additional material from specialized sources.

A key role of awareness messages is to arouse interest or concern, and to motivate further exploration of the subject. In particular, messages should include elements designed to prompt active seeking from elaborated information sources such as web sites, hotline operators, books, counselors, parents, and opinion leaders. Facilitating information-seeking not only extends the exposure to the campaign material, but the content and style of the specialty messages will be more on target for individual needs and tastes and the capacity of these channels enables more extensive information to be accessed.

Sensitization. The everyday environment experienced by focal individuals has a rich array of existing influences that can complement the health campaign messages, but many of these stimuli are simply not salient enough to be recognized or processed. In the mass media, there are numerous news stories, advertisements, entertainment portrayals, and other public service campaigns that present content consistent with campaign goals. Similarly, individuals may not be conscious of certain social norms, interpersonal influences, behavioral models, or societal conditions that might contribute to performance of the focal behavior. Thus, some campaign messages can serve a priming function to cue the audience to available pro-campaign stimuli.

INSTRUCTION MESSAGES

In many campaigns, there is a need to provide "how to do it" information that produces in-depth knowledge and skills acquisition. If the behavioral components are elaborate or complex, messages can educate the audience with a detailed blueprint. If certain individuals lack confidence to carry out the behavior, messages can provide encouragement or training to enhance personal efficacy. If the focal segment is subject to peer pressure or exposed to unhealthy media portrayals, instruction messages can teach peer resistance and media literacy skills.

Given the potentially detrimental health effects of commercial advertising, entertainment media portrayals, and certain web sites, it may be useful to devote a modest proportion of campaign messages to inoculating viewers and listeners against these influences that might undermine the campaign. Although schools often try to these skills, campaign messages can serve a valuable supplementary function in arming the youthful audience to cope with unhealthy environmental influences, and may have a beneficial impact on adults as well.

Instructional messages are not widely used in contemporary health campaigns, particularly in broadcast spots. The limited capacity for conveying detailed information in superficial media modes (e.g., TV and radio messages) is one reason why instruction is underemphasized; another reason is that educational content is regarded as mundane by campaign designers. Nevertheless,

campaigns could make greater attempts to prompt audience information-seeking from richer channels such as pamphlets, web sites, or health care providers.

PERSUASION MESSAGES

Beyond awareness and education, the campaign needs to present messages featuring reasons why the audience should adopt the advocated action or avoid the proscribed behavior. The classic case involves attitude creation or change, usually via knowledge gain and belief formation. For audiences that are favorably inclined, the campaign has the easier persuasive task of attaining reinforcement of predispositions: strengthening a positive attitude, promoting post-behavior consolidation, and motivating behavioral maintenance over time.

The promoting and attacking approaches used in persuasive campaign messages are generally accompanied by corresponding positive or negative incentive appeals. Messages for high-involvement health practices tend to emphasize substantive incentives, presenting persuasive arguments supported by credible messengers or evidence to move the audience through a lengthy hierarchy of output steps such as attention, attitude change, and action (McGuire, 2000).

The most widely used frameworks (theory of reasoned action, protection motivation theory, and health belief model) draw upon a basic expectancy-value mechanism where messages primarily influence an array of beliefs regarding the subjective likelihood of each outcome occurring; attitudinal and behavioral responses are contingent upon each individual's valuation of these outcome.

A large proportion of messages in health campaigns seek to persuade the audience, often using fear appeals regarding harmful consequences of unhealthy behavior. A detailed discussion of the key concepts of persuasive incentives and source messengers is presented below in the next section.

Qualitative Factors in Effective Health Message Design

The effectiveness of public service advertising campaigns is fundamentally determined by qualitative factors encompassing the content, form, and style of the individual messages such as compelling arguments and provocative portrayals. Remarkably, the literature on health campaign impact largely ignores message quality; it appears that little emphasis is given to message design in the development of most media-based interventions, and few research reports describe qualitative factors or isolate the contribution of these factors to campaign effectiveness.

Sophisticated message design includes strategic selection of substantive material, mechanical construction of message components, and creative execution of stylistic features. The central component of successful persuasive messages is the presentation of incentives, which is discussed in detail below. There are several other message qualities that increase effectiveness:

- *Credibility* is the extent to which message content is believed to be accurate and valid; this is primarily conveyed by the trustworthiness and competence of the source messenger and the provision of convincing evidence.

- *Engaging* styles and ideas help attract attention, by using stylistic features that are superficially attractive and entertaining (or arresting), and substantive content that is interesting, mentally stimulating, or emotionally arousing.
- *Understandability* of the message contributes to recipient processing and learning via presentation of material in a comprehensive and comprehensible manner that is simple, explicit, and sufficiently detailed.
- To influence behavior, the presentation must be personally *involving* and *relevant*, such that the receivers regard the recommendation as applicable to their situation and needs.

CREATION OF INCENTIVE APPEALS

Rather than simply exhorting individuals to act in a specified way, it is preferable to present message content that links the desired health behavior to valued attributes or consequences that serve as positive incentives (or that links the unhealthy behavior to negative incentives). The classic incentive strategy in health messages is to offer a series of substantive arguments for or against a particular behavior, buttressed by credible evidence or source assertions.

Types of appeals. The incentive appeals for complying with a recommendation should build on existing values of the target audience. The basic dimensions of incentives include physical well-being, time/effort, economic, psychological/aspirational, and social (see Appendix A). The most frequently used dimension is physical health; negatively-valued unhealthy outcomes (e.g., illness, injury, and premature death) tend to be featured more often than positive reinforcers such as lengthy lifespan, wellness, and fitness. Some campaigns diversify the negative incentive strategies to include appeals beyond health status (e.g., psychological regret, social rejection) and to give greater emphasis to reward-oriented incentives such as altruism, attractiveness, and wellness.

Appeals can emphasize either of the two basic components in the expectancy-value formulation: the subjective probability of a consequence's occurring or the degree of positive or negative valence of that outcome. For unhealthy behaviors, the operational formula is *vulnerability x severity*, positing that the audience is maximally motivated by a high likelihood of suffering a very painful consequence.

The prime communication strategy is to change beliefs regarding the probability component. If there is a discrepancy between the audience's expectancy estimate and the actual likelihood, the message should stress the higher-than-expected probability (especially if the gap exists at the high end of the certainty scale).

A second communication strategy is to intensify the valence by emphasizing the severity of negative consequences (or the positivity of benefits) or to raise the salience of those components of the expectancy-value equation that the audience already regards as advantageous (e.g., positively valued and likely consequences of a recommended practice) so that each of these components is weighted more heavily in the audience's decisionmaking.

Fear appeals. A pervasive strategy in health campaigns is to motivate behavior change by threatening the audience with harmful outcomes from initiating or continuing an unhealthy practice. A strong fear-arousing message typically combines a severe negative physical consequence with an intense stylistic presentation (emotional, vivid, and involving). A mild fear appeal uses a toned-down style to threaten a more likely but less serious outcome. Fear appeals can be risky because there may be boomerang effects or null effects due to defensive responses by the audience members who attempt to control their fear rather than control the danger.

Despite these problems, the research indicates that well-designed fear appeals are quite effective in changing behavior (Stephenson & Witte, 2000). Threats are more successful if the message provides *self-efficacy* instructional material (demonstrating how to perform behaviors and boosting the confidence that the individual can do so successfully) or *response efficacy* material (convincing the individual that the recommended behavior will reduce the danger).

Other negative appeals. The threat of extreme harmful outcomes plays an important but limited role in campaigns. The design team should brainstorm softer reasons why the audience should perform the healthy practice. This diversified approach encompasses messages featuring threats of a less severe nature and negative incentives beyond the physical health domain.

When the designer is unable to offer any incentives that genuinely link strong valence with high probability, the next best approach seems to be to select a mildly valenced incentive that is highly probable, rather than one that is strongly valenced but improbable. In the case of drug campaigns, minor negative physical incentives might be loss of stamina, weight gain, or physiological addiction.

Beyond the realm of physical health, there are dozens of potential motivational appeals along other dimensions. In the social incentive category, drug campaigns can present negative appeals about looking uncool, alienating friends, incurring peer disapproval, losing trust of parents, or deviating from social norms. The constellation of psychological incentives might include reduced ability to concentrate, low grades, feeling lazy and unmotivated, losing control, making bad decisions, and anxiety about getting caught or experiencing harm, guilt, and loss of self-respect. Among the economic incentives related to drugs are diminished job prospects, fines, cumulative cost of purchasing drugs, and inability to spend on other needs and desires. Messages can also highlight penalties for violating laws and policies, such as incarceration, loss of driver's license, or suspension from school.

Positive appeals. Campaigns should diversify by presenting a higher proportion of positive incentives. For each of the negative consequences of performing the proscribed practice, there is usually a mirror-image positive outcome that can be promised for performing the healthy alternative (e.g., avoiding drugs or enjoying a drug-free lifestyle). In the physical health dimension, messages can offer prospects ranging from a longer lifespan to enhanced athletic performance. Positive social incentives include being cool, gaining approval and respect, forming deeper friendships, building trust with parents, and being good role model. On the psychological dimension, messages might promise such outcomes as gaining control over one's life, positive self-image, attaining one's goals, feeling secure, or acting intelligently. Exaggerated rewards may work well as motivators, even though the likelihood is rare; just as negative strategies frequently use long-shot prospects of severe harm, positive approaches could promise

lottery-type payoffs that are more believable to positivists. On occasion, the soft-sell approach attempts to associate the desired behavior with positive images.

Multiple appeals. There are dozens of persuasive appeals that are potentially effective, and the degree of potency is fairly equivalent in many cases. Rather than relying on a handful of incentives in a public service campaign, it's advantageous to use multiple appeals across a series of messages to influence different segments of the target audience (especially in media channels where precise targeting is difficult) and to provide several reasons for the individual to comply.

In selecting incentives, the key criteria are the salience of the promised or threatened consequences, the malleability of beliefs about the likelihood of experiencing these outcomes, and potential persuasiveness of the arguments that can be advanced. The designer should consider the absolute potency of each incentive and the relative contribution vis a vis other concurrent appeals and the influence that has already been achieved in the past. For messages about familiar health subjects, it is important to include some new appeals to complement the standard arguments. Pre-production research can test basic concepts to determine the absolute effectiveness of each one and to examine optimum combinations, and pretesting research can compare the relative influence of executions of various appeals.

PRESENTATION OF EVIDENCE

In conveying an incentive appeal, it is often necessary to provide evidence supporting claims made in the message. This is most important when belief formation is a central mechanism and when the source messenger or the sponsor is not highly credible. The type of evidence featured varies according to each audience; sophisticated and highly involved individuals are more influenced by messages that cite statistics, provide documentation, and include quotations from experts, whereas dramatized case examples and testimonials by respected sources work better for those who are less involved. The message should demonstrate how the evidence is relevant to the situation experienced by the target audience in order to forestall denial of applicability.

In offering evidence, special care should be taken with the presentation of extreme claims (rare cases, implausible statistics, overly dramatic depictions of consequences), highly biased marshalling of supportive facts, and misleading information. These elements may strain credibility and trigger counterarguing among audience members and may be challenged by critics in rebuttal messages.

SELECTION OF SOURCE MESSENGERS

The *messenger* is the model appearing in message who delivers information, demonstrates behavior, or provides a testimonial. The source messenger is helpful in attracting attention, personalizing abstract concepts by modeling actions and consequences, bolstering belief formation due to source credibility, and facilitating retention due to memorability. Typically, these categories of messengers are featured in health messages:

- *Celebrity* (famous athlete or entertainer)
- *Public official* (government leader or agency director)
- *Expert specialist* (doctor or researcher)

- *Organization leader* (hospital administrator or health association executive),
- *Professional performer* (standard spokesperson, attractive model, or character actor)
- *Ordinary real person* (blue-collar man or a middle-class woman)
- *Specially experienced person* (victim, survivor, or successful role model)
- *Unique character* (animated, anthropomorphic, or costumed).

Although health campaigners conventionally favor certain types of messengers, none is necessarily superior to others in all situations. In selecting the appropriate messenger, the crucial factor is which component of influence model needs a boost. For example, celebrities help draw attention to a dull topic, experts enhance response efficacy, ordinary people heighten self-efficacy, victims convey the severity of harmful outcomes, and victims who share similar characteristics of the audience should augment susceptibility claims. Atkin (1994) provides an elaborate discussion of strengths and weaknesses of various types of messengers.

EXECUTION OF MECHANICAL AND STYLISTIC FACTORS

A number of technical aspects of message production are used by the message designer in structuring and highlighting the substantive material, primarily to help attract attention and facilitate comprehension and retention. Atkin (1994) discusses guidelines for constructing key elements:

- *Theme line* (concise representation of main idea with headline, slogan or question)
- *Continuity devices* (distinctive symbols providing common thread across message executions)
- *Verbal copy* (understandable vocabulary, sentence length, copy density)
- *Arrangement of message elements* (primacy vs. recency of key arguments)
- *Physical dimensions* (size of print messages or length of broadcast messages)
- *Audio and visual factors* (use of music or pictures)
- *Technical production quality* (sophisticated techniques and devices).

Stylistic features are primarily employed to convey substantive ideas in an engaging fashion (via artistic devices such as parody, suspense, sensuality, and wordplay), and can augment the other key message qualities of credibility, understandability, and relevance (via features such as serious tone, memorable slogans, and emotionally involving scenes). Here are basic guidelines:

- It's generally effective to use entertainment-oriented stylistic approaches for increasing the *attractiveness* of the message. Many message designers *rely* on humor, which has advantages in certain contexts.
- *Clever stylistic devices* are a hallmark of health messages, especially the use of a play on words, ironic twist, or catchy slogan to attract interest and provoke thought.
- *Vivid presentation styles* such as lively language, striking statements, fascinating facts, and vibrant visuals (and alluring alliteration) are helpful in communicating with low-involvement audiences.
- Content should be conveyed in a *realistic and personalized* manner by depicting situations and models that enable the audience to connect the material to their own experiences.

- A serious *tone* is the safest strategy for delivering the substantive arguments, providing the messages are not overly preachy, boring, or bland.
- The *rational* style of presentation seems best suited for target responses in which the individual already perceives a need but seeks a solution, for target audiences who are more sophisticated and involved, for sources who are high in competence, and for print channels.
- *Emotional* appeals tend to work better in arousing drives and intensifying motivation by highlighting the severity of unhealthy outcomes or the rewards of healthy behavior.

Audience Segmentation and Targeting

A typical health campaign might conceivably subdivide the overall population on a dozen dimensions (e.g., age, sex, ethnicity, stage of readiness for change, susceptibility, self-efficacy, values, personality characteristics, and social context), each with multiple levels (e.g., male vs. female, high vs. low perceived susceptibility to negative consequences). Combining these dimensions and levels, there are thousands of potential subgroups that might be defined for targeting purposes.

There are two major strategic advantages of segmentation. First, message efficiency can be maximized if subsets of the audience are ordered according to importance (substantively: Who is most in need of change?) and receptivity (pragmatically: Who is most likely to be influenced?). Second, effectiveness can be increased if message content, form, and style are tailored to the predispositions and abilities of the distinct subgroups (Atkin & Freimuth, 2000; Dervin & Frenette, 2000; and Dozier, Grunig & Grunig, 2000).

Two basic types of audiences can be targeted in media health campaigns. First, messages may be aimed directly to the focal segments whose behavior is to be changed. Second, the campaign might utilize the indirect two-step flow by targeting influencers who are in a position to exert an impact on the focal individuals. Another indirect approach is to alter the environment by aiming at policy-makers responsible for devising constraints and creating opportunities that shape focal individuals' health decisions.

FOCAL SEGMENTS

The nature of the health problem dictates the basic parameters of the focal audience to be influenced (e.g., adolescents in a drug campaign, middle-aged females in a breast cancer campaign). Because audience receptivity is often a more central determinant of campaign effectiveness than the potency of the campaign stimuli, there will be differential success depending on which particular segment is targeted. To achieve the maximum degree of communication effects, campaign designers often pick off the easier targets.

A fundamental factor is stage of readiness to perform the practice. Campaigns tend to achieve the strongest impact with reinforcing messages designed to maintain the healthy practices of those who are already favorably predisposed. A more important but somewhat less receptive target is composed of people who haven't yet tried the unhealthy behavior but whose background

characteristics suggest they're "at risk" in the near future. On the other hand, those committed to unhealthy practices are not readily influenced by directly-targeted campaigns; even a heavy investment of resources seeking to induce immediate discontinuation typically yields a marginal payoff.

Consider the case of anti-drug campaigns, where two basic predispositional categories of youth are most likely to be influenced by media messages (Fishbein et al, 2000). The first is the healthy core of young people who are not inclined to use drugs; the campaign attempts to maintain the healthy practices by devoting a portion of resources to reinforcing messages. The ONDCP campaign seeks to give support to youth that have resisted drug usage in order to maintain the "loyal franchise." A second key target is the subset of young pre-users who are predisposed to experiment with drugs. Compared to the core, this segment of the population is higher priority because of the greater risk of drug use combined with momentary receptivity.

By contrast, the hard-core users are not readily influenced by campaigns. For many unhealthy practices, those performing risky behavior are highly resistant during early phases (especially during the teenage years). Although this segment is in greatest need of change, it may be fruitless to invest heavy resources to induce immediate discontinuation. As they mature or experience negative consequences, some of these individuals may progress to a readiness stage where they are receptive to cessation messages at some later point in time. In the meantime, focusing campaign messages on adolescent casual users may have a greater chance of success, based on the effectiveness of 1980's anti-cocaine efforts (although much of the impact was confined to adult casual users).

Campaigners also need to consider other demographic, social, and psychological-based subgroups such as the higher vs. lower income strata or high vs. low sensation-seekers (Palmgreen and Donohue, 2000). Influencing these varied population segments requires a complex mix of narrowly customized messages and broadly applicable multi-targeted messages that use diverse appeals and optimally ambiguous recommended actions.

INTERPERSONAL INFLUENCERS AND SOCIETAL POLICY-MAKERS

It's often valuable for campaigners to supplement the direct approach (educating and persuading the focal segment) by influencing other target audiences who in turn can exert interpersonal influence or help reform environmental conditions which shape behaviors of the segment to be changed. Mass media campaigns have considerable potential for producing effects on institutions and groups at the national and community level, as well as motivating personal influencers in close contact with the focal individuals.

These secondary audiences are usually more receptive to health-related messages in the mass media, and their actions are more likely to shape the practices of the focal segments than campaign messages directly targeted to these individuals. Campaign messages can stimulate these parties to provide positive and negative reinforcement, exercise control (by making rules, monitoring behavior, and enforcing consequences), shape opportunities, facilitate behavior with reminders at opportune moments, and serve as role models. Furthermore, influencers can customize their messages to the unique needs and values of the individual.

Informal Influencers. Many unhealthy segments of the population that are most in need of education or persuasion are the hardest to reach through the media because of resistant predispositions. Nevertheless, these individuals are embedded in peer, family, or work networks which can informally influence their behavior, as well as policy implementers who interact with the focal segment. Consider the case of prevention campaigns targeted to high school youth, who interact with a variety of peer and authority figures in a position to personally educate, persuade, or control these teenagers: parents, siblings, friends, co-workers, bosses, teachers, club leaders, coaches, medical personnel, police officers, and store clerks.

An important strategy in a multi-faceted campaign is to stimulate interpersonal influence attempts by inspiring, prompting, and empowering influencers, especially those who are hesitant to wield their authority. The influencers are likely to be responsive to negative appeals that arouse concern about harmful consequences to those they're trying to help behave appropriately. Thus, some campaign messages should be designed to motivate facilitators and enforcers to take action.

Influencer-targeted messages may be supplemented with focal-targeted messages designed to enhance their receptivity to enforcement and interpersonal persuasion. By softening up the focal segment so they'll respond constructively to indirect pro-health influences, the campaign can heighten the likelihood that individuals will accept attempts by others to control their behavioral decisions. One message theme is to put a positive spin on the motives of these interpersonal sources, so the focal segment perceives the influencers to be acting out of altruism, concern, or responsibility to fulfill their authority role.

Policy-makers. Individuals' decisions about health practices are strongly shaped by the constraints and opportunities in their societal environment, such as monetary expenses, laws, entertainment role models, commercial messages, social forces, and community services. Through the interventions of government, business, educational, medical, media, religious, and community organizations, many of these influential factors can be engineered to increase the likelihood of healthy choices or discourage unhealthy practices. These initiatives include direct service delivery, restrictions on advertising and marketing practices, and imposition of taxes.

A promising campaign thrust involves carefully-targeted efforts designed to influence policy-makers who can change the environment that impinges on a health practice. Depending on the health domain, these leaders can legislate propriety by passing laws or raising taxes, they can promote responsibility by exercising moral leadership, and they can facilitate appropriate behavior by creating opportunities for the focal segment.

Over the past decade, advocates of reform have refined *media advocacy* techniques that combine community organizing and media publicity to advance healthy public policies (Wallack, Dorfman, Jernigan, and Themba, 1993). A portion of campaign messages are designed to influence public opinion, government policy-makers, and organization leaders in order to change the environmental conditions affecting public health which shape behaviors of individuals. This approach crosses over into the political sphere by seeking to raise the volume of voices for social change, to increase the sense of urgency, to acquire greater legitimacy for advocated policies.

More fundamental long-range strategies attempt to impel leaders to restructure basic socio-economic conditions by reducing poverty, improving schools, broadening access to the health care system, and enhancing employment opportunities.

The media advocacy strategy relies heavily on agenda setting of health issues. By generating publicity in the news media, the elevated media agenda can shape the public agenda and the policy agenda pertaining to new initiatives, rules, and laws. An important element is changing the public's beliefs about the effectiveness of policies and interventions that are advanced, which leads to supportive public opinion (and direct pressure) that can help convince institutional leaders to formulate and implement societal constraints and opportunities. The ultimate target audience may be government officials, employers, business execs, health care system administrators, religious leaders, media professionals, school administrators, or heads of civic organizations; they are reached directly by the news and editorial content and indirectly via inputs from the aroused public.

Media advocacy can also play a role in the debate between proponents of treatment vs. prevention, and more specifically the relative priority of school-based programs vs. paid media campaigns. Summative evaluation data demonstrating campaign effectiveness can be strategically publicized to secure support for greater investment of resources in subsequent media-based campaigns. Furthermore, evidence of campaign success in addressing health problems may impress the general public and community opinion leaders who are in a position to provide localized support services to complement media messages.

One key policy approach focuses on changing the media environment. There are numerous types of mass media messages that undermine the effects of health campaigns, particularly advertisements (e.g., commercials for beer or proprietary medicines) and entertainment (e.g., dramas or songs that glamorize unhealthy practices). Aggressive campaigners may attempt to reduce these corruptive influences by prodding regulators to restrict content or by encouraging social responsibility on the part of corporations and media organizations that produce the messages. Similarly, restrictions on marketing and sales policies for products such as alcohol and tobacco can reduce access to unhealthy products.

Channels in the Media Mix

A majority of the campaigns reviewed in this paper disseminate television spot messages, primarily PSAs and an increasing use of paid ads. The other widely used channels and modes are radio spots, newspaper publicity, and pamphlets. Very few of the campaigns employ other television modes (e.g., TV news and feature stories, talk shows, entertainment inserts), magazines, web pages, billboards, or direct mail. Most campaigns rely on just a single medium of mass communication, although some of the major comprehensive community campaigns use multiple modalities to disseminate health messages.

CHANNEL FEATURES

Campaign designers have a remarkably wide array of options for channeling health messages, which are listed in Appendix A. There are myriad advantages and disadvantages of each channel and mode, which can be assessed along a number of *communicative dimensions*:

- *reach* (proportion of community exposed to the message)
- *specialization* (targetability for reaching specific subgroups)
- *intrusiveness* (capability for overcoming selectivity and commanding attention)
- *safeness* (avoidance of risk of boomerang or irritation)
- *participation* (active receiver involvement while processing stimulus)
- *meaning modalities* (array of senses employed in conveying meaning)
- *personalization* (human relational nature of messenger-receiver interaction)
- *decodability* (mental effort required for processing stimulus)
- *depth* (channel capacity for conveying detailed and complex content)
- *credibility* (believability of material conveyed)
- *agenda-setting* (potency of channel for raising salience priority of issues)
- *accessibility* (ease of placing messages in channel)
- *economy* (low cost for producing and disseminating stimuli)
- *efficiency* (simplicity of arranging for production and dissemination).

Appendix B outlines some key strengths and weaknesses of 24 different channels and modes on the various communication dimensions; outlined below are features for several widely-used channel options:

- *TV PSAs*: Strengths include reach, intrusiveness, decoding ease; weaknesses include accessibility, safeness, depth capacity, and participation.
- *Newspaper articles*: Among the strengths are accessibility, reach, depth, credibility, agenda-setting, economy, and efficiency; major weaknesses are decodability and personalization.
- *Pamphlets*: Strong features are depth and participation; weak features are reach, decodability and personalization.

While these conventional channels are effective, a more diverse variety of channels, modes, and vehicles may produce impressive results. Conceptually, channel selection is dictated by the usage patterns of the target receivers and the nature of the message. Pragmatically, the limited resources of the campaigner also play a role. It's usually more feasible to stage a pseudo event that generates news coverage than acquire time or space in the ideal media vehicle, it's more feasible to achieve a minor product placement in an entertainment program than to capture the whole plotline, and it's more feasible to place a PSA on a low-rated mature adult radio station than a hot teen station.

PROMISING LOW-COST MEDIA

Certain health campaigns have secured sufficient funds to support paid advertising (usually TV spots), which enables the campaign to overcome the most significant drawback of PSA's, which is accessibility to the broadcast channels. However, most campaigns have very limited monetary resources, and there are several other weaknesses of conventional options such as public service spots and pamphlets. Given these prevalent limitations, four promising alternatives can be implemented at relatively low cost and potentially high exposure and impact:

- Applying creative public relations techniques in news and information media.
- Embedding health messages in popular entertainment vehicles.
- Developing and promoting content in technologically advanced interactive channels.
- Utilizing the mini-media that are overshadowed by the glamour of broadcast media

Creative publicity. Health campaigners have traditionally underutilized public relations techniques for generating news and feature story coverage in the mass media. Over the past decade, health topics have become increasingly central among journalistic priorities for newspapers, newsmagazines, and television newscasts. Moreover, there are opportunities for message dissemination in daytime TV talk shows and specialty magazines and cable channels.

Public relations in the health domain should move beyond the passive distribution of press releases by aggressively placing guests on talk shows, regularly feeding the feature writers with compelling story ideas, and creatively staging pseudo events to attract journalist attention (including the dramatization of health-related statistics using “creative epidemiology” techniques). A key tactic is to showcase compelling messengers such as celebrity spokespersons, government officials, and charismatic experts who have gained prominence, along with victims and survivors who provide a human interest angle.

In achieving impact on the audience, there are several advantages of public relations messages over pre-packaged stimuli such as PSA's, pamphlets, and web pages.

- Messages appearing in the informational media tend to have greater credibility than packaged messages that utilize an advertising format; this facilitates belief-formation regarding health consequences and acceptance of recommended behaviors.
- Focal individuals often use these media modes, so the campaign can achieve greater audience reach at a lower cost.
- Placements in the mainstream media can attract attention of key types of informal influencers, who can exert an indirect impact on the focal individuals.
- Health issues gaining visibility in the news media can benefit from the agenda-setting effect, whereby problems and solutions are perceived as more urgent and significant. This is particularly important in media advocacy strategies targeted to opinion leaders and policy makers in society.

Entertainment-education. The practice of embedding health-related material in entertainment programming (or creating entertainment programming as a vehicle for health education) has become widespread in developing countries (Singhal and Rogers, 1999). Because the interesting and enjoyable style of presentation attracts large audiences and conveys

information in a relevant and credible manner, this approach has proved to be quite successful in promoting health in Africa, Asia, and South America. Entertainment-education has been used sparingly in the United States, with narrow applications in efforts to promote the designated driver, safety belts, safe sex, and drug abstinence, along with child-oriented topics such as alcohol, occupational roles, and conflict resolution. Despite reticence on the part of the domestic entertainment industry (and recent controversy in the case of drug-related themes in TV shows), this practice has considerable promise for US health campaigns.

Interactive media stimuli. There are now thousands of Web sites and CD ROM disks offering a wide array of health materials, and campaigns are increasingly utilizing this channel (Lieberman, 2000). In addition to the provision of pre-packaged pages and streaming video, the interactive capacity of these technologies offers a promising advance over standard media messages. Screening questionnaires can assess each individual's capabilities, readiness stage, stylistic tastes, knowledge levels, and current beliefs, and then direct them to narrowly-targeted customized messages that are precisely designed to address their needs and predispositions. Not only does this approach increase the likelihood of learning and persuasion, but it decreases the possibility of boomerang effects. Furthermore, entertaining interactive formats such as games are particularly well suited for youthful focal segments. An essential ingredient of success is the effective promotion of the sites and materials in order to attract the target audience.

Mini-media. Secondary media such as billboards, posters, flyers, banners, comic books, table tents, theater slides, bookmarks, buttons, shirts, and bumper stickers lack the glamour of a TV spot or the depth of a booklet, but these forms of communication can serve valuable functions in a health campaign at a fairly low production cost. As access to traditional channels becomes more difficult, campaign organizations may profitably invest the needed effort to disseminate these modest types of messages, which have the advantage of reaching narrow target audiences of focal individuals.

Quantitative Dissemination Factors

The elusive ideal in health campaigns is the magic bullet, where the right message appeal is sent through the right channel to the right target audience with impressive effects. Wallack (1989) refers to this unlikely scenario as the "media fantasy". In reality, the media operate more like a shotgun than a rifle, spraying tiny pellets across broad audiences. In certain respects, this scattershot approach may actually be functional for hitting the moving targets and reaching the evasive quarry. The primary implication, however, is that a large amount of messages must be disseminated in order to achieve meaningful impact. While not sufficient to ensure success without high quality content, substantial quantity is almost invariably a necessary condition for effective campaigns.

Strategic dissemination considerations encompass the volume of messages, the amount of repetition, the prominence of placement, and the scheduling of message presentation.

- A substantial *volume* of stimuli is needed to attain adequate reach and frequency of exposure, along with comprehension, recognition, and image formation. Moreover, maximum

saturation conveys significance of the problem, which is an essential facilitator of agenda setting and heightened salience.

- Moderate *repetition* of specific executions may be needed to force low-involvement receivers to attend and process the message, but high repetition leads to wearout and diminishing returns.
- *Prominent placement* of messages in conspicuous positions within media vehicles (e.g., prime-time, back page) serves to enhance both exposure levels and perceived significance.
- To provide a common thread unifying the varied messages, the campaign should feature *continuity devices* (e.g., logo, slogan, jingle, messenger), which increase memorability and enable the audience to cumulatively integrate material across multiple exposure impressions.
- Another quantitative consideration involves the *scheduling* of a fixed number of presentations; depending on the situation, campaign messages may be most effectively concentrated over a short period of time, dispersed thinly over a lengthy timeframe, or distributed in intermittent bursts of "flighting" or "pulsing".
- Finally, the overall *duration* of the campaign combines elements of volume and scheduling. For many health domains, a sustained campaign lasting at least one or two years may be required to achieve significant impact on behavior (for certain behaviors, perpetual campaigning may be necessary).

The realities of health promotion and prevention often require exceptional persistence of effort over long periods of time. Perpetual campaigning is often necessary because focal segments of the population are in constant need of influence. There are always newcomers who are moving into the "at risk" stage of vulnerability, backsliders who are reverting to prior misbehavior, evolvers who are gradually adopting the recommended practice at a slow pace, waverers who are needing regular doses reinforcement to stay the course, and latecomers who are finally seeing the light after years of unhealthy habits.

Unfortunately, the limited resources available for most public service campaigns greatly restrict the quantity of messages disseminated. Among the campaigns that are described in the published literature, very few involve dissemination of a large sustained quantity of messages in mass media channels. This lack of quantitative potency even applies to many campaigns that are backed with resources to pay for time and space in the media. Presumably, meager quantity is even more of a problem for the vast majority of campaigns for which there are not even published reports measuring effects.

To maximize quantity, campaigners need to diligently pursue monetary resources from government, industry or association sources to fund paid placements and leveraged media slots, to aggressively lobby for free public service time or space, to skillfully employ public relations techniques for generating entertainment and journalistic coverage, and to utilize the low-cost Internet channel of communication. Moreover, pseudo-quantity can be boosted by sensitizing audiences to appropriate content already available in the media and by stimulating information-seeking from specialty sources.

Why Campaigns Fail

There are many reasons why some campaigns produce almost no positive effects on the health behaviors of individuals. This section describes basic problems faced by campaign designers as they attempt to use the media to move individuals toward healthy behavior, especially when the campaigns are directly aimed at recalcitrant or apathetic focal segments of the population. These factors may conspire to yield the dreaded “null effects”, which may be due to simple lack of impact or due to mixed impacts that occur when gains achieved with a portion of the audience are offset by “boomerang effects” on other subsets of receivers.

For the large majority of individuals who are not highly receptive to performing the desired health behavior, there are a series of *resistance barriers* at each stage of response to campaign messages: exposure, processing, learning, yielding, behavioral implementation. Perhaps the most elemental problem is the inability of the campaign to simply reach the audience and attain adequate exposure to the messages. Insufficient quantitative dissemination may render some of the campaign messages nearly invisible, while messages lacking key qualitative features often fail to capture the attention of most receivers.

Other key barriers include the audience’s misperception of susceptibility to negative outcomes, deflection of persuasive appeals, denial of applicability to self, rejection of unpalatable recommendations, and inertia. Thus, substantial segments of the overall audience are lost at each stage of message response. The messages may be regarded as offensive, disturbing, boring, stale, preachy, confusing, irritating, misleading, irrelevant, uninformative, useless, unbelievable, or unmotivating.

Beyond null effects, some media health messages may produce counterproductive *boomerang* effects that run counter to the campaign objectives or to that undermine other health practices. In mass media campaigns, imprecisely-targeted messages reach a variety of audiences and there’s limited control over how receivers interpret the content. The problem is more acute for negative messages that depict problem behaviors and attempt to threaten individuals. The following side effects may result from errant campaign strategies:

- *Inadvertent social norming* may occur when alarming prevalence statistics or portrayals of misbehavers or victims (which serve to impress sponsors and to motivate influencers) may serve to normalize the unhealthy behavior.
- Reformed celebrities delivering warnings may be perceived as *unhealthy role models* (and healthy celebrities may get into subsequent trouble).
- Portraying the proscribed behavior as undesirable may *promote the competition* as audience becomes curious, learns it’s fun, or regards it as challenging; in particular, it may be risky to portray risky behavior because it may be appealing to risk-takers in the audience.
- The *forbidden fruit* appeal might sell the fruit. If adolescents are told that they’re too young to perform a behavior or simply warned not to do it, there’s always the chance that psychological reactance may lead to the opposite response.

- Highly threatening *fear appeals may backfire* without a strong efficacy component, and the use of exaggerated claims may undermine source credibility for other messages in the campaign. Frequent emphasis on a negative incentive may produce *desensitization*, as audience becomes accustomed to this harmful outcome.
- On the other hand, an underwhelming threat may also be counterproductive if the harmful outcome is less severe than expected, yielding a negative *violation of expectations*.
- Finally, there are larger issues involving counterproductive *problem-shifting* within the health domain. For example, if adolescents are successfully scared away from marijuana, they may drink more alcohol because it is seen as relatively less harmful. If teenage drinkers adopt the heavily-promoted designated driver practice, it may disinhibit drunkenness among their non-driving companions. If teenage drivers are convinced that safety belts will protect them, they may drive faster and suffer high-speed crashes.
- More fundamentally, the conventional campaign focus on individual behavior change puts the onus of responsibility on the “victim” while *deflecting attention from social and structural determinants* of the health problem (Wallack and Dorfman, 2000).

Rough message pretesting is the best method to guard against counter-productive features that may produce negative net result.

Most of the campaigns reviewed in this paper appear to employ a disciplined approach to design and implementation, encompassing a thorough situational analysis, a pragmatic strategic plan, and the creation and placement of messages in accordance with principles of effective media campaign practices (relying on research inputs at each phase in the production process).

However, the major well-funded projects that get published in research journals are the cream of the crop. Many organizations that sponsor health campaigns (and campaign designers) succumb to various irresistible temptations: they are occasionally contemptuous (regarding the focal segment as misbehavers who are ignorant and misguided), righteous (admonishing unhealthy people about their incorrect behavior), extremist (rigidly advocating unpalatable ideals of healthy behavior), politically correct (staying within tightly prescribed boundaries of propriety to avoid offending overly sensitive authorities and interest groups), colleague-oriented (seeking to impress professional peers and overly-reliant on normative practices for the genre), self-indulgent (attempting sophisticated executions where creativity and style overwhelm substantive content considerations).

Thus, campaigns tend to overemphasize creative self-expression, clever sloganeering, artistic production values, celebrity spokespersons, exciting visual channels, and powerful fear appeals threatening severe harm. This approach can occasionally produce creatively brilliant messages which win awards and generate positive reactions from the audience, but the overall campaign does not necessarily contribute to changes in health behavior.

Health specialists aren't always conscious of the fact that they differ substantially from their audiences in knowledge, values, priorities, and level of involvement, so they lack the perspective

of the "average" person. Research data from samples of the target audiences can help overcome the gulf between sender and receiver.

Conclusions

Based on the health campaign research literature and theories of media processes and effects, this concluding section presents a listing of key pathways of media influence and a set of guidelines for improved campaign design.

PATHWAYS OF MEDIA INFLUENCE

The mass media can promote healthy behavior and prevent unhealthy behavior through dozens of complex processes; the listing below presents seven basic pathways. In each case, there are several cognitive and affective stages between the media stimuli and the behavioral response; only the key intermediate factor is identified in this simplified presentation:

MEDIA → KNOWLEDGE → BEHAVIOR (learning by focal individuals)

MEDIA → BELIEFS → BEHAVIOR (persuading focal individuals)

MEDIA → SKILLS → BEHAVIOR (instructing focal individuals)

MEDIA → AWARENESS → BEHAVIOR (triggering focal individuals)

MEDIA → INFO-SEEKING → BEHAVIOR (stimulating focal individuals)

MEDIA → KNOWLEDGE → INFLUENCE (learning by influencers)

MEDIA → PROBLEM SALIENCE → POLICY (activating policy-makers)

GUIDELINES FOR CAMPAIGN DESIGN

Health campaigns that are *directly targeted* to the focal segment of the population tend to have a modest degree of impact, and the effects on fundamental values and behavior patterns are very limited. But impact is highly variable, depending on the palatability of the advocated behavior, the receptivity of target audience, and the quality and quantity of messages. Indirect pathways may hold greater promise of influencing the focal segments.

In order to increase the degree of impact of mediated health campaigns, the campaign designers need to take into account the potency of the mass media in making basic decisions about how to develop and implement the campaign. Here is a list of factors that are usually subject to strategic manipulation in media campaigns:

Specifying target audiences:

- Identify relatively receptive focal segments that are more amenable to influence
- Determine pragmatic mix of focal vs. influencer vs. policy-maker segments

Defining target responses:

- Select acts and practices that have a relatively favorable benefit-cost ratio
- Symbolically represent the desired response in the most palatable manner

Emphasizing pathways that play to the strengths of the mass media:

- Impart new knowledge (e.g., TV spot informing people about nutritional value of soy)
- Enhance salience (e.g., news publicity stressing importance of drunk driving problem)
- Trigger action (e.g., radio announcement reminding drivers to buckle up during snowstorm)
- Stimulate information-seeking (e.g., calling a hotline, consulting a physician)

Matching channels and modes to target audiences and pathways of influence

- Assess strengths and weaknesses of media options
- Determine lowest-cost modes that will influence target audiences

Maximizing quantitative campaign potency:

- Pursue monetary resources needed for paid placements
- Utilize creative and political resources to generate free publicity and entertainment portrayals

Improving qualitative message potency:

- Select the most influential incentives and source messengers
- Create message executions featuring the most appropriate styles and formats
- Collect information from target audience, and pretest message concepts and prototypes

Testing the audience to ascertain effective strategies and messages

- Collect formative evaluation information as input for campaign design

- Pretest preliminary versions of messages to determine potential impact
- Measure outcomes to assess overall effects and isolate key contributing factors

Application these guidelines can increase the effectiveness of media health campaigns by overcoming some of the inherent limitations of mass communication influence processes. For many health topics, it will be necessary to supplement the media component with other forms of education, persuasion, and control (e.g., classroom instruction, physician advice, social influence, and environmental constraints/opportunities); indeed, the media campaign can play a role in shaping and energizing these complementary forces.

References

- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Alstead, M., Campsmith, M., Halley, C., Hartfield, K., Goldbaum, G., & Wood, R. (1999). Developing, implementing, and evaluating a condom promotion program targeting sexually active adolescents. *AIDS Education and Prevention*, 11: 497-512.
- Atkin, C. (1979). Research evidence on mass mediated health communication campaigns. In D. Nimmo (Ed.), *Communication Yearbook* (Vol. 8, pp. 562-584). Beverly Hills, CA: Sage.
- Atkin, C. (1981). Mass media information campaign effectiveness. In R. Rice & W. Paisley (Eds.), *Public communication campaigns* (pp. 265-280). Beverly Hills, CA: Sage.
- Atkin, C. (1994). Designing persuasive health messages. In L. Sechrest, T.E. Backer, E.M. Rogers, T.F. Campbell, & M.L. Grady (Eds.), *Effective dissemination of clinical health information. AHCPR Publication No. 95-0015* (pp. 99-110). Rockville, MD: Public Health Service, Agency for Health Care Policy and Research.)
- Atkin, C. (2000). Designing effective media campaigns, in R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp.49-68). Thousand Oaks, CA: Sage.
- Atkin, C. (in press). Promising strategies for media health campaigns. In W. Crano & S. Ostman (Eds.), *Mass media and drug prevention*. Matwah, NJ: Erlbaum.
- Atkin, C., & Freimuth, V. (2000). Formative evaluation research in campaign design. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp. 125-144). Thousand Oaks, CA: Sage.
- Atkin, C., & Wallack, L. (1990). *Mass communication and public health: Complexities and conflicts*. Newbury Park, CA: Sage.
- Atkin, C., Wallack L., & DeJong, W. (1992). *The influence of responsible drinking TV spots and automobile commercials on young drivers*. Washington, DC: AAA Foundation for Traffic Safety.
- Backer, T., & Rogers, E. (1993). *Organizational aspects of health communication campaigns: What works?* Newbury Park, CA: Sage.
- Backer, T., Rogers, E., & Sopony, P. (1992). *Designing health communication campaigns: What works?* Newbury Park, CA: Sage.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

- Bauer, R. (1971) The obstinate audience: The influence process from the point of view of social communication. In W. Schramm & D. Roberts (Eds.), *The process and effects of mass communication* (pp. 328-346). Urbana: University of Illinois Press.
- Bauer, U., Johnson, T., Hopkins, R., & Brooks, R. (2000). Changes in youth cigarette use and intentions following implementation of a tobacco control program. *JAMA*, 284:723-728.
- Bauman, K., LaPrelle, J., Brown, J., Koch, G., & Padgett, C (1991). The influence of three mass media campaigns on variables related to adolescent cigarette smoking: Results of a field experiment. *American Journal of Public Health*, 81: 597-604.
- Black, G. S. (1991). Changing attitudes toward drug use: The effects of advertising. In L. Donohew, H. E. Sypher, & W. J. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 157-191). Hillsdale, NJ: Lawrence Erlbaum.
- Borzekowski, D. & Poussaint, A. (1999). Public service announcement perceptions: a quantitative examination of anti-violence campaign. *American Journal of Preventive Medicine*, 17: 181-188.
- Boster, Frank, & Paul Mongeau (1984). Fear arousing persuasive messages. In R. Bostrom (Ed.), *Communication Yearbook* (Vol. 8, pp. 330-375). Beverly Hills: Sage.
- Boyd, N., Sutton, C., Orleans, C., McClatchey, M., Bingler, R., Fleisher, L., Heller, D., Baum, S., Graves, C., & Ward, J. (1998). Quit Today! A targeted communications campaign to increase use of the cancer information service by African American smokers. *Preventive Medicine*, 27(5 Pt 2): S 60-70.
- Boyle, R., Stilwell, J., Vidlak, L., & Huneke, J. (1999). "Ready to quit chew?" Smokless tobacco cessation in rural Nebraska. *Addictive Behaviors*, 24: 293-297.
- Bracht, N. (2000). Community orientations to campaign design and implementation. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp. 323-342). Thousand Oaks, CA; Sage.
- Broadcasting & Cable, March 6, 2000. "Not seeing spots."
- Broome, K (1999). "Folic acid campaign and evaluation--Southwestern Virginia, 1997-1999", *MMWR. Morbidity and Mortality Weekly Report*, 48:914-917.
- Brown, J. D., & Walsh-Childers, K. (1994). Effects of media on personal and public health. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (pp. 389-415). Hillsdale, NJ: Lawrence Erlbaum.
- Burgoon, M., & Miller, G. (1985). An expectancy interpretation of language and persuasion. In H. Giles & R. St Clair (Eds.), *Recent advances in language, communication, and social psychology* (pp. 199-229). London: Lawrence Erlbaum.

Butler, M. (2000). "America's Sacred Cow", in R. Rice & C. Atkin (Eds.), *Public Communication Campaigns* (pp. 309-314). Thousand Oaks, CA: Sage.

Cappella, J., Fishbein, M., Hornik, R., Ahern, R., & Sayeed, S. (2000). Using theory to develop messages in anti-drug media campaigns: reasoned action and media priming. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp. 214-230). Thousand Oaks, CA: Sage.

COMMIT Research Group (1995a). "Community Intervention Trial for Smoking Cessation: I. Cohort results from a four-year community intervention." *American Journal of Public Health*, 85: 183-192.

COMMIT Research Group (1995b). "Community Intervention Trial for Smoking Cessation: II. Changes in adult cigarette smoking prevalence." *American Journal of Public Health*, 85: 193-200.

DeJong, W., & Atkin, C. K. (1995). A review of national television PSA campaigns for preventing alcohol-impaired driving, 1987-1992. *Journal of Public Health Policy*, 16: 59-80.

DeJong, W., & Winston, J. (1990). The use of mass media in substance abuse prevention. *Health Affairs*, 2: 30-46.

Donohew, L., Sypher, H., & Bukoski, W. (1991). *Persuasive communication and drug abuse prevention*. Hillsdale, NJ: Erlbaum.

Donohew, L., Lorch, E., & Palmgreen, P. (1991). Sensation seeking and targeting of televised anti-drug PSAs. In L. Donohew, H. E. Sypher, & W. J. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 209-226). Hillsdale, NJ: Lawrence Erlbaum.

Donohew, L., Palmgreen, P., & Duncan, J. (1980). An activation model of information exposure. *Communication Monographs*, 47: 295-303.

Donohew, L., Palmgreen, P., & Lorch, E. P. (1994). Attention, need for sensation, and health communication campaigns. *American Behavioral Scientist*, 38: 310-322.

Dozier, D., Grunig, L., & Grunig, J. (2000). Public relations as communication campaign. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp. 231-248). Thousand Oaks, CA: Sage.

Engleberg, M., Flora, J., & Nass, C. (1995). AIDS knowledge: Effects of channel involvement and interpersonal communication. *Health Communication*, 7: 73-91.

Everett, M. W., & Palmgreen, P. (1995). Influences of sensation seeking, message sensation value, and program context on effectiveness of anticocaine public service announcements. *Health Communication*, 7: 225-248.

Farquhar, J., Maccoby, N., et al. (1977). Community education for cardiovascular health. *Lancet*, 1: 1192-1195.

Farquhar, J., Fortmann, S., Flora, J., Taylor, B., Haskell, W., Williams, P., Maccoby, N., & Wood, P. (1990). Effects of community-wide education on cardiovascular disease risk factors: The Stanford Five-City Project. *JAMA*, 264: 359-365.

Feingold, P., & Knapp, M. (1977). Anti-drug abuse commercials. *Journal of Communication*, 27: 20-28.

Flay, B., & Burton, D. (1990). Effective mass communication strategies for health campaigns. In C. Atkin & L. Wallack (Eds.), *Mass communication and public health*. Newbury Park, CA: Sage.

Flora, J. (2000). The Stanford community studies: campaigns to reduce cardiovascular disease. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp. 193-213). Thousand Oaks, CA: Sage.

Flora, J. A., Maccoby, N., & Farquhar, J. W. (1989). Communication campaigns to prevent cardiovascular disease: The Stanford community studies. In R. E. Rice & C. K. Atkin (Eds.) *Public communication campaigns* (pp. 233-252). Newbury Park, CA: Sage.

Flora, J. A., & Maibach, E. W. (1990). Cognitive responses to AIDS information: The effects of issue involvement and message appeal. *Communication Research*, 17: 759-774.

Flora, J. A., Saphir, M. N., Schooler, C., & Rimal, R. N. (1997). Toward a framework for intervention channels: Reach, involvement, and impact. *Annals of Epidemiology*, 7: S104-112.

Flynn, B., Worden, J., Secker-Walker, R., Pirie, P., Badger, G., Carpenter, J., and Geller, B. (1994). Mass media and school interventions for cigarette smoking prevention: Effects 2 years after completion. *American Journal of Public Health*, 84: 1148-1150.

Flynn, B., Worden, J., Secker-Walker, R., Pirie, P., Badger, G., Geller, B., and Constanza, M. (1992). Prevention of cigarette smoking through mass media intervention and school programs. *American Journal of Public Health*, 82: 827-834.

Gantz, W., Fitzmaurice, M., & Yoo, E. (1990). Seat belt campaigns and buckling up: do the media make a difference? *Health Communication*, 2: 1-12.

Greenberg, B. & Gantz, W. (1973). Public television and taboo topics: The impact of VD blues. *Public Telecommunications Review*, 4: 59-66.

Greenberg, B. & Gantz, W. (2000). Singing the VD Blues. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp.269-272). Thousand Oaks, CA: Sage.

Griffin, R., & Dunwoody, S. (2000). The relation of communication to risk judgment and preventive behavior related to water. *Health Communication*, 12: 81-107.

Hafstad, A., & Aaro, L. E. (1997). Activating interpersonal influence through proactive appeals: Evaluation of a mass media-based antismoking campaign targeting adolescents. *Health Communication*, 9: 253-272.

Hale, J. L., & Dillard, J. P. (1995). Fear appeals in health promotion: Too much, too little or just right? In E. Maibach & R. Parrott (Eds.), *Designing health messages: Approaches from communication theory and public health practice* (pp. 65-80). Newbury Park, CA: Sage.

Hatcher, J., Alexander, L., & Abrar, L. (1998). "Designing messages to reduce infant mortality: From talking posters to public service announcements." *American Journal of Public Health*, 88: 305-306.

Henriksen, L. & Flora, J. (1999). "Third-person perception and children: Perceived impact of pro- and anti-smoking ads," *Communication Research*, 26: 575-590.

Hertog, J. K., & Fan, D. P. (1995). The impact of press coverage on social beliefs: The case of HIV transmission. *Communication Research*, 22: 545-574.

Holder, H. D. (1994). Mass communication as an essential aspect of community prevention to reduce alcohol-involved traffic crashes. *Alcohol, Drugs, and Driving*, 10: 295-307.

Hu, T., Sung, H., & Keeler, T. (1995). "Reducing cigarette consumption in California: Tobacco taxes vs. an anti-smoking campaign," *American Journal of Public Health*, 85: 1218-1227.

Janz, N. K., & Becker, M. H. (1984). The health belief model: A decade later. *Health Education Quarterly*, 11: 1-47.

Jason, J., Solomon, L., Celentano, D., & Vlahov, D. (1993). "Potential use of mass media to reach urban intravenous drug users with AIDS prevention messages." *International Journal of the Addictions*, 28: 837-853.

Jenkins, C., McPhee, S., Le, A., Pham, G., Ngoc, H., & Stewart, S. (1997). "The effectiveness of a media-led intervention to reduce smoking among Vietnamese-American men." *American Journal of Public Health*, 87: 1031-1034.

Kegeles, S., Hays, R., & Coates, T. (1996). The Mpowerment project: a community-level HIV prevention intervention for young gay men. *American Journal of Public Health*, 86: 1129-1136.

Klapper, J. (1960). *Effects of mass communication*. Chicago, IL: Free Press, 1960.

Kline, F., Miller, P., Morrison, A. (1976). Communication issues in different public health areas. *Advances in Consumer Research*, 3: 290-294.

- Klingler, R. & Aune, K. (1994). Effects of a daytime serial and a public service announcement in promoting cognitions, attitudes, and behaviors related to bone-marrow testing. *Health Communication*, 6: 225-245.
- Leupker, R., Murray, D., et al. (1994). Community education for cardiovascular disease prevention: risk factor changes in the Minnesota heart health program. *American Journal of Public Health*, 84: 1383-1393.
- Leupker, R., et al. (2000). Effect of a community intervention on patient delay and emergency medical service use in acute coronary heart disease. *JAMA*, 284: 60-67.
- Lorch, E. P., Palmgreen, P., Donohew, L., Helm, D., Baer, S. A., & D'Silva, M. U. (1994). Program context, sensation seeking, and attention to televised anti-drug public service announcements. *Human Communication Research*, 20: 390-412.
- Maibach, E. & Parrott, R. (1995). *Designing health messages: Approaches from communication theory and public health practice*. Thousand Oaks, CA: Sage Publications.
- McAlister, A., Johnson, W., Guenther-Grey, C., Fishbein, M., et al. (2000). Behavioral journalism for HIV prevention: Community newsletters influence risk-related attitudes and behaviors. *Journalism and Mass Communication Quarterly*, 77: 143-159.
- McGuire, W. (1989). Theoretical foundations of campaigns. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp. 43-66). Newbury Park, CA: Sage.
- McGuire, W. (1994) Using mass media communication to enhance public health. In L. Sechrest, T.E. Backer, E.M. Rogers, T.F. Campbell, & M.L. Grady (Eds.), *Effective dissemination of clinical health information. AHCPR Publication No. 95-0015* (pp. 125-151). Rockville, MD: Public Health Service, Agency for Health Care Policy and Research.
- McPhee, S., Jenkins, C., & Wong, C. (1995). "Smoking cessation intervention among Vietnamese Americans: A controlled trial. *Tobacco Control*, 4 (suppl 1): S16-S24.
- Mendelsohn, H. (1973). Some reason why information campaigns can succeed. *Public Opinion Quarterly*, 37: 50-61.
- Morrison, A., Kline, F. & Miller, P. (1976) Aspects of adolescent information acquisition about drugs and alcohol topics. In R. Ostman (Ed.). *Communication Research and Drug Education*. Beverly Hills, CA: Sage Publications, pp. 133-154.
- Murray, D., Prokhorov, A., & Harty, K. (1994). Effects on a statewide antismoking campaign on mass media messages and smoking beliefs. *Preventive Medicine*, 23: 54-60.
- Murry, J. P., Stam, A., & Lastovicka, J. L. (1996). Paid- versus donated media strategies for public service announcement campaigns. *Public Opinion Quarterly*, 60: 1-29.

Palmgreen, P. (1998). Applications of a theoretic model of information exposure to health interventions. *Health Communication Research*, 24: 454-468.

Palmgreen, P., & Donohew, L. (in press). Effective mass media strategies for drug abuse prevention campaigns. In W. J. Bukoski & Z. Sloboda (Eds.), *Handbook of drug abuse prevention: Theory, science, and practice*. New York: Plenum Publications.

Palmgreen, P., Donohew, L., Lorch, E. P., Rogus, M., Helm, D., & Grant, N. (1991). Sensation seeking, message sensation value, and drug use as mediators of PSA effectiveness. *Health Communication*, 3: 217-227.

Palmgreen, P., Donohew, L., & Harrington, N. (2000). "Sensation seeking in antidrug campaign and media design. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp. 300-303). Thousand Oaks, CA: Sage.

Palmgreen, P., Lorch, E. P., Donohew, L., Harrington, N. G., D'Silva, M., & Helm, D. (1995). Reaching at-risk populations in a mass media drug abuse prevention campaign: Sensation seeking as a targeting variable. *Drugs and Society*, 8: 29-45.

Petty, R., Baker, S., & Gleicher, F. (1991). Attitudes and drug abuse prevention: Implications of the Elaboration Likelihood Model of persuasion. In L. Donohew, H. Sypher, & W. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 71-90). Hillsdale, NJ: Lawrence Erlbaum Associates.

Pierce, J., Anderson, D., Romano, R., Meissner, H., & Odenkirchen, J. (1992). Promoting smoking cessation in the United States: effect of public service announcements on the Cancer Information Service telephone line. *Journal of the National Cancer Institute*, 84: 677-683.

Popham, W., Potter, L., Bal, D., Johnson, M., Duerr, J., & Quinn, V. (1993). Do anti-smoking media campaigns help smokers quit? *Public Health Reports*, 108: 510-513.

Prochaska, J., & DiClemente, C. (1983). Stages and processes of self change of smoking: Toward an integrative model. *Journal of Consulting and Clinical Psychology*, 51: 390-395.

Reger, B., Wooton, M., & Booth-Butterfield, S. (1998a). 1% Or Less: a community-based nutrition campaign. *Public Health Reports*, 113: 410-419.

Reger, B., Wooton, M., & Booth-Butterfield, S. (1999). Using mass media to promote healthy eating: A community based demonstration project. *Preventive Medicine*, 29: 414-421.

Rimal, R., Flora, J. & Schooler, C. (1999), Achieving improvements in overall health orientation: Effects of campaign exposure, information seeking, and health media use, *Communication Research*, 26:322-348.

Rogers, E. M., & Storey, J. D. (1987). Communication campaigns. In C. R. Berger & S. H. Chaffee (Eds.) *Handbook of communication science* (pp. 817-846). Beverly Hills, CA: Sage.

- Stacy, A. W., Newcomb, M. D., & Bentler, P. M. (1993). Cognitive motivations and sensation seeking as long-term predictors of drinking problems. *Journal of Social and Clinical Psychology*, 12: 1-24.
- Rogers, R. (1983). Cognitive and physiological processes in fear appeals and attitude change: A revised theory of protection motivation. In J. Cacioppo & R.E. Petty (Eds.), *Social psychophysiology* (pp. 153-176). New York: Guilford Press.
- Rosenstock, I. (1990). The health belief model: Explaining health behavior through expectancies. In K. Glanz, F. M. Lewis, & B. K. Rimer (Eds.), *Health behavior and health education: Theory research and practice* (pp. 39-62). San Francisco, CA: Josey-Bass
- Rouzier, P., & Alto, W. (1995). "Evolution of a successful community bicycle helmet campaign." *Journal of the American Board of Family Practice*, 8: 283-287.
- Schooler, C., Chaffee, S. H., Flora, J. A., & Roser, C. (1998). Health campaign channels: Tradeoffs among reach, specificity, and impact. *Human Communication Research*, 24: 410-432.
- Schooler, C., Flora, J. A., & Farquhar, J. W. (1993). Moving toward synergy: Media supplementation in the Stanford Five-City Project. *Communication Research*, 20: 587-610.
- Schooler, C., Sundar, S. S., & Flora, J. A. (1996). Effects of the Stanford Five City Project media advocacy program. *Health Education Quarterly*, 23: 346-364.
- Siegel, M., & Biener, L. (2000). The impact of an antismoking media campaign on progression to established smoking: Results of a longitudinal youth study. *American Journal of Public Health*, 90: 380-386.
- Singhal, A. & Rogers, E. (1999). *Entertainment-education: a communication strategy for social change*. Mahwah, NJ: Erlbaum.
- Siska, M., Jason, J., Murdoch, P., Yang, W., & Donovan, R. (1992). "Recall of AIDS public service announcements and their impact on the ranking of AIDS as a national problem." *American Journal of Public Health*, 82: 1029-32.
- Slater, M. (1999). Integrating application of media effects, persuasion, and behavior change theories to communication campaigns: A stages-of-change framework. *Health Communication*, 11: 335-354.
- Snyder, L. (2000). "How effective are mediated health campaigns?" In R. Rice & C. Atkin (Eds.), *Public Communication Campaigns* (pp. 181-190). Thousand Oaks, CA: Sage.
- Snyder, L., & Rouse, R. (1995). The media can have more than an impersonal impact: The case of AIDS risk perceptions and behavior. *Health Communication*, 7: 125-145.

- Stephenson, M., & Witte, K. (2000). Fear appeals in health communication message design. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp. 88-104). Thousand Oaks, CA: Sage.
- Stephenson, M., Palmgreen, P., Hoyle, R., Donohue, L., Lorch, E., & Colon, S. (1999). Short term effects of an anti-marijuana media campaign targeting high sensation seeking adolescents. *Journal of Applied Communication Research*, 27: 175-195.
- Voas, R. B., Holder, H. D., & Gruenewald, P. J. (1997). The effect of drinking and driving interventions on alcohol-involved traffic crashes within a comprehensive community trial. *Addiction*, 92(Suppl. 2): 221-236.
- Wakefield, M., & Chaloupka, F. (2000). Effectiveness of comprehensive tobacco control programmes in reducing teenage smoking in the USA. *Tobacco Control*, 9: 177-186.
- Wallack, L. (1989). Mass communication and health promotion: A critical perspective. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp. 353-368). Newbury Park, CA: Sage.
- Wallack, L. & Dorfman, L. (2000). Critical and advocacy approaches to campaigns. In R. Rice & C. Atkin (Eds.), *Public communication campaigns* (pp. 389-402), Thousand Oaks, CA: Sage.
- Wallack, L., Dorfman, L., Jernigan, D., & Themba, M. (1993). *Media advocacy and public health*. Newbury Park, CA: Sage.
- Walls, C., Lauby, J., Lavelle, K., Derby, T., & Bond, L. (1998). "Exposure to a community – level HIV prevention intervention: Who gets the message." *Journal of Community Health*, 23: 281-299.
- Wartella, E. & Middlestadt, S. (1991). Mass communication and persuasion: The evolution of direct effects, limited effects, information processing, and affect and arousal models. In L. Donohew, H. Sypher, & W. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 53-69). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Weenig, M.W.H., & Midden, C.J.H. (1997). Mass-media information campaigns and knowledge-gap effects. *Journal of Applied Social Psychology*, 27: 945-958.
- Williams, J. E., & Flora, J. A. (1995). Health behavior segmentation and campaign planning to reduce cardiovascular disease risk among Hispanics. *Health Education Quarterly*, 22: 36-48.
- Williams, A. F. (1994). Contribution of education and public information to reducing alcohol-impaired driving. *Alcohol, Drugs and Driving*, 10: 197-205.
- Winkleby, M. A., Flora, J. A., & Kraemer, H. C. (1994). A community-based heart disease intervention: Predictors of change. *American Journal of Public Health*, 84: 767-772.

Winsten, J. A. (1994). Promoting designated drivers: The Harvard Alcohol Project. *American Journal of Preventive Medicine*, 10(Suppl. 1): 11-14.

Winsten, J., & DeJong, W. (2000). The designated driver campaign. In R. Rice & C. Atkin (Eds.), *Public Communication Campaigns* (pp. 290-294). Thousand Oaks, CA: Sage.

Yanovitsky, I. & Bennett, C. (1999), Media attention, institutional response, and health behavior change. *Communication Research*, 26: 429-453.

Zastowny, T. R., Adams, E. H., Black, G. S., Lawton, K. B., & Wilder, A. L. (1993). Sociodemographic and attitudinal correlates of alcohol and other drug use among children and adolescents: Analysis of a large-scale attitude tracking study. *Journal of Psychoactive Drugs* , 25: 223-237.

Zucker, D., Hopkins, R., Sly, D., Urich, J., Kershaw, J., & Solari, S. (2000). Florida's "truth" campaign: a counter-marketing, anti tobacco media campaign. *Journal of Public Health Management Practice*, 6(3):1-6.

Appendix A: Basic Incentive Dimensions and Valued Attributes

Incentive Dimension:	Promises:	Attacks:
PHYSICAL	Safety Wellness	Death Illness
ECONOMIC	Quick Efficient Easy Bargain Employed	Slow Wasteful Difficult Costly Unemployed
PSYCHOLOGICAL	Success Security Freedom Self-esteem Pleasure Contentment Intelligent Logical	Failure Anxiety Subjugation Self-deprecation Misery Regret Ignorant Irrational
MORAL-LEGAL	Law-abiding Virtuous Fairness	Criminal Guilt Inequity
SOCIAL	Acceptance Coolness Attractive Normative Sociability Altruism Power	Rejection Embarrassment Unappealing Deviant Isolation Selfish Weakness

Appendix B: Features of Media Channels and Modes for Disseminating Health Messages

Key: ++ = High + = Medium 0 = Low

Channel & Mode	<u>Access</u>	<u>Reach</u>	<u>Target</u>	<u>Depth</u>	<u>Credible</u>	<u>Agenda</u>
TV: PSA spots	0	++	+	+	+	+
Paid ads	++	++	+	+	+	+
News coverage	+	+	+	+	++	++
Feature stories	+	+	+	++	++	+
Public service shows	++	0	++	++	++	0
Talk/magazine shows	0	++	+	++	+	+
Entertainment inserts	0	++	+	+	+	+
Radio: PSAs	+	++	++	0	+	+
Paid spots	++	++	++	0	+	+
News coverage	+	+	++	0	+	+
Talk/call in	++	+	++	++	+	+
Newspaper: Ads	0	++	+	++	+	+
News coverage	++	++	+	++	++	++
Feature stories	+	++	+	++	+	+
Editorial comment	+	+	++	++	+	+
Letters to editor	++	+	+	+	+	0
Magazine Ads/Stories	+	+	++	++	+	+
Internet Web pages	++	+	++	++	+	0
Billboards/Posters	+	++	++	0	0	0
Theater shorts/Slides	+	+	++	+	0	0
Film-tape-slide shows	++	0	++	++	+	0
Pamphlets/Booklets	+	0	+	++	+	0
Direct mail materials	+	+	++	++	+	0

Access = Degree of campaign's accessibility to channel distribution

Reach = Proportion of general public exposed to message in channel

Target = Specialized target audience segments are reached via channel

Depth = Channel capacity for conveying detailed and complex content

Credible = Believability of message content carried in the channel

Agenda = Channel potency for raising perceived significance of topic