

form professional audiences about the services and products of the National AIDS Clearinghouse. New technologies such as CD-ROM should be evaluated for their application to Clearinghouse services.

Over the last 30 years, the Federal Government has established clearinghouses or information resource centers to meet information demands. At least 43 other PHS clearinghouses, ranging from the Alzheimer's Disease Education and Referral Center to the National Worksite Health Promotion Center, are currently in existence. Clearinghouses provide an information resource for the American public and remain essential resources in our effort to control disease. In the absence of a vaccine or a cure for AIDS, information and education remain the critical tools for HIV-AIDS prevention, and the Clearinghouse is a critical component of this prevention program.

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## A System for Evaluating the Use of Media in CDC's National AIDS Information and Education Program

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## Synopsis.....

*The National AIDS Information and Education Program (NAIEP) commissioned the National Academy of Sciences to design a prototypical system of research for use in the evaluation of the agency's media campaign. It consists of four types of evaluation: formative, efficacy, process, and outcome. These types of evaluations are used to answer such questions as the following: What message strategies will work best? Can a campaign under optimal conditions be expected to make a difference? What interventions are actually delivered during the campaign? Has the campaign actually had an impact?*

*How NAIEP has used the system and adapted it during 1 year of research activities is outlined, and examples from a variety of other social marketing programs are described.*

**I**N 1989, THE CENTERS FOR DISEASE CONTROL (CDC) commissioned the National Academy of Sciences (NAS) to provide recommendations concerning the evaluation of its AIDS prevention programs. NAS responded with "Evaluating AIDS Prevention Programs" (1), which provided guidelines specifically for the evaluation of the media

campaigns of the National AIDS Information and Education Program (NAIEP), but the guidelines also can be viewed as a research exemplar that is widely applicable to virtually any social marketing program.

We begin with a broad discussion of issues that commonly arise in the evaluation of social market-

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ing efforts and then describe NAS's prototypical system of evaluation research and NAIEP's experiences with its first year of evaluation activities.

### **Research Issues in Social Marketing**

Research is considered indispensable to the success of all contemporary forms of marketing. Commercial marketers have long recognized the importance of research to their trade and have commissioned countless proprietary studies to further their success in selling a multitude of products. Social marketers, purveyors of ideas and lifestyles rather than tangible products, have embraced research more recently, partly because of a general paucity of financial resources in the public service sector, but also because of a number of ambiguities and barriers endemic to the social marketing process itself.

First, the goals of commercial marketing often are straightforward—for example, to sell more units of a specific product—whereas the goals of social marketing often involve vague outcomes that do not easily lend themselves to empirical measurement (2,3). Outcomes such as “altered lifestyles,” “increased practice of safe sex,” or “improved health” may be highly desirable, but certainly they are not easily measured. This vagueness in goals can translate into imprecise or inappropriate evaluative measures. Second, social marketing programs often address sensitive topics, such as sexual behaviors or drug use. Evaluating the success of these programs therefore necessarily involves asking highly personal questions, which engenders serious methodological problems in selecting appropriate research designs and securing valid data from individual respondents (4-6).

Third, even the most widely employed evaluation designs suffer from limitations. The tradeoffs of using an “advertising” paradigm versus a “moni-

toring” paradigm of evaluation have been described elsewhere (7,8). Using the former, researchers commonly measure exposure to campaign messages and implicitly assume that it ultimately will be translated into varying degrees of attitudinal and behavioral change through an elaborate causal process. This advertising paradigm has the advantage of being sensitive to rather small effects at the initial links of a causal chain of outcomes. However, it can suffer from what is known as the “distal measure fallacy” because it focuses on these initial links to the exclusion of more distant ones, such as reductions in the incidence of risky behaviors.

In using the common alternative, the monitoring paradigm, researchers examine records and archival data to assess the ultimate impact of a given campaign, rather than initial or intermediate links in the causal chain. As a result, this paradigm can suffer from the “attenuated effects fallacy” by underestimating the campaign's actual and sundry impacts on the earlier links of the causal chain of outcomes.

Fourth, evaluators must deal with these methodological conundrums while operating within fairly strict political, financial, or temporal constraints, or all three, endemic to all public sector undertakings. In the specific case of NAIEP, for example, an entity of the Federal Government, all data collection must be approved in advance by the Office of Management and Budget, a process that can take up to 6 months. At the same time, all data collection must be tightly coordinated with all other elements of campaign development, including planning and strategy meetings, internal reviews, production schedules, and campaign launching. The timing of these other elements is set well in advance and often cannot be altered without incurring great cost. Given that the entire period allotted for campaign development—from generation of the initial idea to the ultimate launching—is typically less than 1 year, NAIEP's evaluation procedures must be rapid, efficient, and comprehensive. The confluence of intangible outcomes, sensitive topics, problematic research designs, and temporal parameters creates formidable problems for the evaluation of social marketing programs.

The NAS evaluation guidelines deal with many of these problems and describe a system of research organized around four generic, but fundamental questions:

1. What campaign components—including message appeals and channels—are likely to work best?

2. Can the campaign, under optimal conditions, be expected to make a difference?

3. What interventions are actually delivered during the course of a campaign?

4. Has the campaign actually made a difference?

Each of these four questions corresponds to the following four types of evaluation research: formative, efficacy, process, and outcome—also referred to as effectiveness.

### Formative Evaluation

Formative evaluation, conducted during the process of developing the campaign, is designed to ensure that only those materials that are potentially most effective are finally produced for the media. This form of evaluation includes several research activities, most notably concept testing and copy testing, which must be completed prior to the full-fledged inauguration of a campaign.

In concept testing, the role and determinants of a targeted behavior within people's lives are examined through qualitative and quantitative research techniques. The primary goal is to produce messages that persuade the intended audience. To accomplish this goal, however, researchers must first attempt to understand the "meanings of behavior one wants to change in the context of the lives of the people one wants to reach" (1a). Achieving understanding requires the use of focus groups, that is, conveniently, as opposed to "randomly" or "scientifically," selected members of target groups assembled to discuss and offer insights into a particular marketing problem, and conducting representative surveys to glean insights from members of various target groups regarding the concepts, themes, and message appeals that might work with particular groups.

The classic example of concept development historically can be found in the work of a pioneer of social marketing, Edward L. Bernays (9), a consultant to captains of industry and politics in the early 20th century. In the 1920s, the president of American Tobacco hired Bernays to alter the prevailing social norms of the day, which inhibited women from smoking in public. After consulting with a psychoanalyst, Bernays determined that the concept of emancipation might be useful as a message appeal in a social marketing effort. Bernays eventually convinced selected women to carry cigarettes—symbols of emancipation in the form of "torches of freedom"—in an Easter Day Parade to illustrate their struggle against male oppression.

This incident generated considerable publicity and was credited with substantially reducing the potency of the social norm. Through this early and limited form of concept testing, Bernays demonstrated that an understanding of the meaning of symbols and images was critical to the success of social marketing efforts.

In the context of AIDS, the development of concepts represents an important step in altering social norms or individual reluctance to engage in safe behaviors. For example, if the goal of an AIDS prevention program is to encourage sexually active adults to talk to their prospective sex partner about their history of HIV-related behaviors, concept testing would examine impediments to this behavior as well as possible avenues for change.

In focus groups, a moderator might stimulate discussion of general social taboos against talking about one's sexual history, stereotypes about persons who frequently engage in HIV risk-related behaviors, or anxiety stemming from conversations about the specter of death and disease. Following this work with focus groups, researchers would commission projects in survey research to determine whether the ideas generated from the focus groups were widely shared among other members of targeted groups.

The second step of formative evaluation is copy testing, a type of research in production evaluation (10), in which the success of alternative message appeals is compared in terms of their achieving specified cognitive, affective, or behavioral outcomes. Typically, research consists of laboratory studies with experimental designs involving treatment and control groups (11). As with most such designs, external validity—that is, the extent to which results may be generalized to other populations or situations—is sacrificed to maximize internal validity—that is, the extent to which researchers are certain that a specific outcome is attributable to a specific message stimulus (12). Early copy testing involves the use of storyboards, primitive cartoon-like displays of proposed materials, and animatics, films of storyboards with a soundtrack. Because the effects of rough copy and final, polished materials can differ strikingly, late copy testing is done with more sophisticated versions of messages.

An important function of copy testing is the early detection of unintended effects of media campaigns. Certain messages may have boomerang effects, the opposite of those intended, or detrimental side effects (13). The use of unflattering sex-role or ethnic stereotypes may induce anger or resentment of members of a target population.

Alternatively, the use of an esoteric metaphor to make a point about "safe sex" may be differentially understood by persons of varying levels of education, thereby raising the possibility that the message may be totally ineffective with certain population subgroups (14).

Palmer (15) has described the extensive use of copy testing by the Children's Television Workshop in its production of "Health Minutes," television and radio programs designed for low- and middle-income urban children. The health messages were evaluated according to six criteria:

1. the degree to which the audience comprehended each message,
2. the extent to which the performers were perceived as believable,
3. the extent to which the characters in the messages represented acceptable models which audience members might emulate,
4. the extent to which the messages were considered relevant, important, and useful,
5. the extent to which audience members felt that the recommendations were "do-able" given their capabilities and resources, and
6. the extent to which messages were seen as sufficiently motivational.

The results of this and other research were used to tailor the messages better to specific target audiences.

**NAIEP experience.** Since 1989, NAIEP has engaged in formative research for one phase of the "America Responds to AIDS" campaign. In addition to the three types of formative research described previously, NAIEP used a fourth type, an ongoing series of studies designed to address evaluation issues as they arise in the organization. For example, all public service announcements (PSAs) include the telephone number of CDC's National AIDS Hotline. To determine what design characteristics of the PSAs might influence the extent of willingness to call the hotline, a program of research has been designed for systematic study. This research is formative in the sense that it will be used in the design of future PSAs; however, it is not time dependent in the sense that it addresses fundamental communication issues and is not tied to a specific phase of the media campaign.

NAIEP's experiences to date strongly reinforce the need to integrate qualitative and quantitative formative research. Quantitative research, which involves the use of controlled experimentation and

survey research, is needed for the assessment of the message's effects on individuals' attitudes and beliefs. Qualitative research, which involves observation, unstructured discussion, and the collection of generally more impressionistic data, is needed for a thorough understanding of the meaning of results obtained from quantitative research.

## Efficacy Evaluation

Efficacy research is a hybrid of formative and outcome evaluation. NAS describes this type of research as an assessment of whether, under optimal and yet "real-world" conditions, the proposed campaign *could* be successful. In large measure, this form of evaluation is a mechanism for bridging the gap between internal and external validity mentioned earlier. Formative research relies heavily on laboratory designs, and such results often will be discrepant with those obtained in naturalistic settings (16). Efficacy research investigates the generalizability of laboratory findings by test marketing messages using quasi-experimental designs. According to NAS guidelines, efficacy trials should be conducted for at least 6 months and offer multiple airings of broadcast messages scheduled to appear during programs popular with various target audiences. Because such cooperation from broadcasters often is not feasible, researchers usually must use paid advertising rather than conventional donated air time (17).

Because of the required commitment of money (for paid advertising) and time (6 months), there are few examples of efficacy research cited in the literature. The closest probably would be that described by Robertson and coworkers (18), in which half the cable television subscribers in a community received messages about automobile safety belts and half did not. While this landmark 1971-72 study involved a quasi-experimental design in a naturalistic setting, it did not include the use of paid advertising and consequently did not provide optimal conditions for examining the potential success of the campaign. Not surprisingly, at least in terms of what is known today about the likelihood of such a limited campaign having an effect on behavioral outcomes, the campaign had no impact.

**NAIEP experience.** To date, NAIEP has engaged in one efficacy test, a comparison of two PSAs in different test markets over a 3-day period using a pretest-posttest design. In spite of the brief airings of the PSAs, they were found to be effective in

making the issue of AIDS more salient to the general public according to M. Siska and co-authors of "Recall of AIDS Public Service Announcements and their Impact on the Ranking of AIDS as a National Problem" (unpublished manuscript of NAIEP). The study could not be lengthened because of financial and temporal constraints. Indeed, it is unlikely that the NAS-endorsed 6-month efficacy trial could be conducted given various organizational deadlines and financial exigencies. As a result, NAIEP will begin extensive late copy testing and commission efficacy trials only in selected markets following the campaign's launching. Using such a design, the research questions would focus on comparisons of media and PSA schedulings rather than the specific effectiveness of a single PSA.

### Process Evaluation

Process evaluation is concerned with identifying exactly what materials were disseminated to and successfully placed in the media and who was potentially or actually exposed to those messages. A comparison of the number of messages disseminated with the number of messages actually aired or published provides an organization with some feedback concerning how media "gatekeepers" (newspaper editors and television news directors) are reacting to the messages. This comparison can be made either through constantly monitoring television stations oneself, subscribing to services such as the Broadcast Advertisers Reports (BAR), or securing records from media gatekeepers directly.

Assessing exposure can be done either through analysis of viewer profiles for programs during which a public service announcement was aired (potential exposure), or through telephone surveys in which persons are asked to recall any public service announcements they have seen recently (actual exposure). Whereas surveys involve obtrusive measures of exposure, activities such as recording the volume of calls to various AIDS hotlines immediately following the airing of a public service announcement employ unobtrusive measures of exposure (1). The combination of obtrusive and unobtrusive measures is considered eminently desirable, for it allows evaluators to circumvent various methodological biases afforded by either one alone.

**NAIEP experience.** NAIEP has made substantial use of BAR data and records of daily numbers of calls to CDC's National AIDS Hotline. In addition, NAIEP will seek other means of assessing au-

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dience exposure to the media campaign, either through secondary analysis of standard sources of audience data (for example, Arbitron, Nielsen), or through collection of primary data in the form of tracking studies. A more detailed example of NAIEP process evaluation is provided by Gentry and Jorgensen (19).

### Outcome Evaluation

Outcome evaluation consists of determining whether messages successfully effected the desired outcomes. Outcome evaluation should not be viewed as the capstone of the evaluation process, but merely as one phase in a cycle of research. For example, outcome evaluation data from various secondary and primary sources can be used in preproduction formative research by identifying segments of the audience that lack knowledge of how HIV is transmitted or identifying messages that don't appear to be getting through to the public (10,20). Thus the endpoint of one campaign cycle merely signals the beginning of the next, and all four phases of evaluation become intertwined.

It is extremely difficult to evaluate NAIEP's media campaign with conventional quasi-experimental designs because no reasonable comparison group exists (that is, there is no country identical to the United States, nor is there a comparable country that has not already instituted AIDS education programs). This differentiates NAIEP from large-scale community-based research and education programs such as the Stanford Five City Project or the Minnesota Heart Health Program, in which matched pairs of treatment and comparison communities were used in a quasi-experimental design (21,22). Because the media campaign is only one component of the overall NAIEP social marketing program, it is virtually impossible to isolate the specific contribution of media when analyzing changes in cognition, affect, or behavior. Each component is integrated with and serves as a catalyst for other prevention activities.

Although NAS has recommended that the NAIEP campaign might be evaluated by means of

a "phased roll-out" procedure, in which certain sections of the country would receive the campaign earlier than others, the costs of a lagged or regionally segregated distribution would be prohibitive and the mechanics problematic. Second, some State health departments and local organizations, motivated by concerns of ethics, have been critical of the concept of some areas receiving materials later than others. Third, with a single national distribution, it is possible to expand the campaign's reach by exploiting the campaign as a "newsworthy" event. A nationwide launch provides network-level play, news media coverage, and free national satellite distribution of the spots to affiliates.

**NAIEP experience.** To date, outcome evaluation has consisted largely of analyzing data from the AIDS Supplement to the National Health Information Survey and the Behavioral Risk Factor Survey. With these data, evaluators have been able to track trends in knowledge and beliefs about AIDS, as well as self-perceived risk, experience with blood donation, and acquaintance with persons with AIDS or HIV infection (23,24). These surveys are, in and of themselves, insufficient for outcome evaluation because they are not designed specifically to assess NAIEP objectives, and they can include only a few items directly pertaining to those objectives. As a result, NAIEP will supplement data from the National Health Information Survey and the Behavioral Risk Factor Survey with primary data collection using quarterly or monthly cross-sectional telephone or in-person interviews in several sentinel markets. Items will measure such outcomes as knowledge, attitudes, and behavioral intentions pertaining to campaign objectives.

## Summary

For the NAIEP media campaign, formative evaluation will ensure that the specific materials produced are understood by, and will have a desired effect on, the at-risk and low-risk audiences. Efficacy testing will assess the effects of a given campaign under optimal conditions, or at least more externally valid conditions than those afforded by a laboratory setting. Process evaluation will define the potential exposure of the audience. Outcome evaluation will permit the campaign to proceed in a cost-effective manner by providing information on what needs to be altered and when and how those alterations should be made. This combination of formative, efficacy, process, and outcome evaluation is expected to greatly enhance

NAIEP's ability to produce effective media materials. In addition, the lessons learned and data collected will potentially be of great use and importance to other agencies evaluating social marketing efforts.

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## Paid Advertising for AIDS Prevention—Would the Ends Justify the Means?

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### Synopsis .....

*An examination by the Centers for Disease Control and the Research Triangle Institute concluded that "hard-to-reach" populations could be*

*reached with AIDS prevention messages through the broadcast and print media and that a study should be undertaken to assess whether paid placement of these messages could have an effect on HIV-related behaviors.*

*The recommended target population for a study of paid advertising would be sexually active 18-24-year-old black urban dwellers. Its behavioral objectives would include abstinence and safer sex practices.*

*For any evaluation of a paid advertising campaign to be valid, there would have to be extensive audience profiling, research into the development of the message, pretesting of the message, and involvement of the community. The proposed study would include measurement of various "dosage" levels of paid advertising, use of a no-intervention comparison group, and a novel data collection technique.*

*Although a specific target group and specific messages would be involved, the evaluation would make a substantial contribution to resolving the broader issue of whether and how mass media should be used directly or indirectly to change or reinforce health-related behaviors.*

**I**N THE BELIEF THAT the public media are valid vehicles for the dissemination of health information and education and disease prevention activities, the Federal Government's AIDS efforts in this regard

have been directed since 1987 by the National AIDS Information and Education Program (NAIEP) of the Centers for Disease Control (CDC).