Obtaining Optimal Attendance at Mass Immunization Programs

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NEARLY 1 MILLION CASES of diphtheria, typhoid, measles, poliomyelitis, smallpox, pertussis, tetanus, tuberculosis, and typhus combined are reported each year in the Western Hemisphere (*1*). Since only a fraction of the actual number of cases is ever reported to health authorities, the unnecessary deaths, permanent disabilities, and concomitant economic, social, and psychological costs to the victims and their nations cannot be overstated.

Failure of Immunization Campaigns

All too often, even when vaccines, personnel, and immunization equipment are available and immunizations are free to populations, substantial proportions of the people still fail to receive them. These failures occur not only in developing societies but in the technologically advanced as well. For example, in a recent rural immunization campaign in Honduras, community turnouts for the campaign varied from as great as 80 percent of the target population in one community to as little as 15 percent in another (*2*). Surprisingly, according to the project coordinator of a continuing rubella program in a large eastern U.S.

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city, the project reached only 3 percent of the still susceptible population of 40,000 people during a campaign in April 1971.

Coordinating communication strategies with immunization program planning is crucial to the conduct of mass immunization campaigns. With the high-speed capacity of modern mass-immunization equipment, the most effective method of administering injections is by attracting people to immunization centers.

To date there has been a considerable amount of research describing and examining the reasons people fail to obtain immunizations. The literature on this research, however, presents the potential program planner with a bewildering set of contradictions and debates. For example, in a literature review of preventive behavior, Douglass asserts, "It appears from the literature that demographic and socioeconomic characteristics are better correlates of health behavior than health beliefs, social influences, or cultural background" (*3*). In direct contrast, Kasl and Cobb, in their literature review, conclude that the health belief model studied by Hochbaum, Rosenstock, and Kegeles is the best explanation offered for health behavior on the part of a person who has no symptoms (*4*). Lin and co-workers, on the other hand, place great stress on communication behavior and the social influence of individual persons during mass immunization campaigns as a predictor of immunization receptivity (*5*). This centrifugal tendency of research results leaves the program planner without knowledge of what will be most effective for the success of his program.

Thus, there is a need to translate descriptions of and debates about research results into concrete prescriptions on how to persuade people to respond to mass immunization programs. Translating research results into practical prescriptions is difficult and is usually avoided by academicians. These difficulties arise for three reasons:

1. It is difficult to know the extent to which results from a variety of research settings and methods can be generalized to other communities, countries, and continents.

2. Statistical results do not permit firm statements about cause-effect relationships.

3. Applying research results can be dangerous if other factors, either known or unknown to researchers and practitioners, are overlooked.

Nevertheless, the consequences of failure to attempt such a translation are so severe that the usual trepidations are outweighed. I shall attempt to provide a series of guidelines for persuading target populations to attend mass immunization programs. I will outline specific administrative suggestions and will seek to explain the theoretical and empirical rationale for them by drawing on the growing amount of literature that examines why people attend or fail to attend immunization programs.

Know the Target Population

The most important single recommendation that can be made to an administrator planning a mass immunization campaign is to know the target population. It is the key to all of the following recommendations.

The demographic characteristics, the communication exposure and behavior, and the psychological predispositions of a population must be known before one can intelligently plan an immunization program. Without such information it is difficult, if not impossible, to generalize to a target population the results and implications of research.

In an immunization campaign one should identify the unimmunized and the hardest to reach in the population. Numerous studies have been conducted in the United States and other countries to isolate the characteristics that seem to be related to immunization program attendance. The most striking result of these studies is that the receiving of immunizations is related to various measures of socioeconomic status.

In a review analyzing education, occupation, income, and immunization receptivity, Green reported that relations between social status and immunization status were so strong that even when one controls statistically for such commonly accepted explanatory variables as health knowledge, fear of diseases, and the availability of services, the positive association still persists (*6*). Before Green's observation, numerous surveys and reviews gave positive relations between education, income, and immunization receptivity (*7–22*). Only Merrill and co-workers reported an inverse relationship between education and receptivity (*13*). Moreover, research since that time has not contradicted these findings (*5a, 14*).

Race has also been studied in relation to immunization receptivity. Most researchers found nonwhites to be the least willing to accept immunization (*15–18*). The only major exception to these results was reported by Belcher. In Greene

and Hancock Counties of Georgia, where special, sometimes coercive, efforts were made by teachers of nonwhite students to persuade them to receive poliomyelitis inoculations, the trends for social class and race were reversed (*19*).

Other researchers have examined the impact of a person's social integration into a community on his response to mass immunization programs. Based on measurements of social integration, participation in community organizations (*14a*), feelings of alienation (*14b, 15a*), and naming or being named by others in friendship choices (*20*), these researchers report that when a community is being offered immunizations, the more integrated into the community a person is, the more likely he will be to receive an immunization.

Another set of results suggests that, regardless of race, education, and income, the people who would be most likely to participate in a mass immunization campaign are those who feel they are susceptible to the target disease; that the disease, if contracted, would have serious consequences; and that immunization is an effective, convenient, and safe way of preventing the disease or diseases in question (*21–25*). These authors maintain that for persons who can be categorized this way based on their feelings, certain environmental cues are needed to trigger action. Such cues might include messages about health programs. Hochbaum even conjectures about the relationship between the psychological variables and the cues to action. He proposes that to produce action, a low intensity of psychological factors can be compensated for by a greater intensity of cues, and vice versa (*21a*).

For the program planner the crucial questions are how many people in the target population fall into these categories, why are some groups more resistant to immunizations, and how can these difficulties be overcome. Results about relationships between demographic characteristics, social integration, or health beliefs and immunization receptivity, when combined with knowledge about the proportions of the population who exhibit such characteristics, can be used to improve strategies to increase immunization receptivity.

Several hypothetical illustrations can be offered. Research has indicated that persons of lower socioeconomic status with lower levels of income and education, in general, have less exposure to mass media communications. Consequently, during a mass immunization program such persons are less likely to learn about the program, or they learn about it later than persons of higher socioeconomic status (*5a, 26, 27*). Similarly, persons with low levels of social integration tend to have fewer communication contacts and also are less likely to learn of immunization programs. If an administrator identifies such groups in his target population, he should employ more than mass media or community organizations to inform the population about the program.

Although, admittedly, more personnel would be required, special additional information dissemination could focus on neighborhoods inhabited by persons of lower socioeconomic status and weaker social integration. Such efforts might include door to door canvassing, leaflet distribution, and posting information in supermarkets, laundromats, department stores, transit vehicles, and public buildings.

Also if one knows the beliefs of a population, strategies can be devised that are appropriate to those beliefs. If large portions of a population already feel susceptible to a disease or feel it would have severe consequences if contracted, little may be gained by disseminating messages designed to further heighten anxieties about susceptibility and severity. In such a population, more might be gained by disseminating messages that provide information about how to obtain immunizations most easily. If messages about susceptibility and the severity of a disease are to be used at all, perhaps they should be reserved only for those segments of the population that do not feel susceptible to the disease or feel it has little consequence if contracted.

To evaluate these suggestions and the others that follow, program planners should know the characteristics of their target populations. Without such knowledge they will be unable to judge the applicability of different strategies to target populations.

Begin Information Dissemination Early

A common belief among public health administrators who plan mass immunization programs seems to be that if a population is informed too early, interest will wane and many people will forget about the program. While such logic is well intentioned, it ignores a more overriding issue. Unless information dissemination about a program begins early, it will not reach the entire target population.

Research on the diffusion of information and on the acceptance of innovation has shown that both proceed on an S-shaped curve cumulatively over time (*28*). In a campaign in Central America, Lin and Hingson found similar curves over time for the diffusion of information about the immunization program and for the decision making about whether to accept immunizations (*2a*).

If information about an immunization campaign is not allowed sufficient time to diffuse, for example, if diffusion time is cut in half, large segments of the population will never learn about the program and a small proportion will be unable to decide whether to attend (see chart).

Of course, the impact of lengthening the time between the initiation of information dissemination and the immunization program may vary for different populations. The actual length of time required for information to disseminate to an entire population may vary according to the exposure of a target population to different communications media and according to the degree to which those media coincide with the media employed to disseminate information about an immunization program.

Lin and co-workers suggest that planners in developing nations allow at least 4 weeks for information dissemination before the date of an immunization program (*5b*). In more technologically advanced societies slightly less time may be required. Certainly, any planner who does not allow at least 3 weeks of intensive information dissemination could seriously imperil his program.

Use More Than One Communication Medium

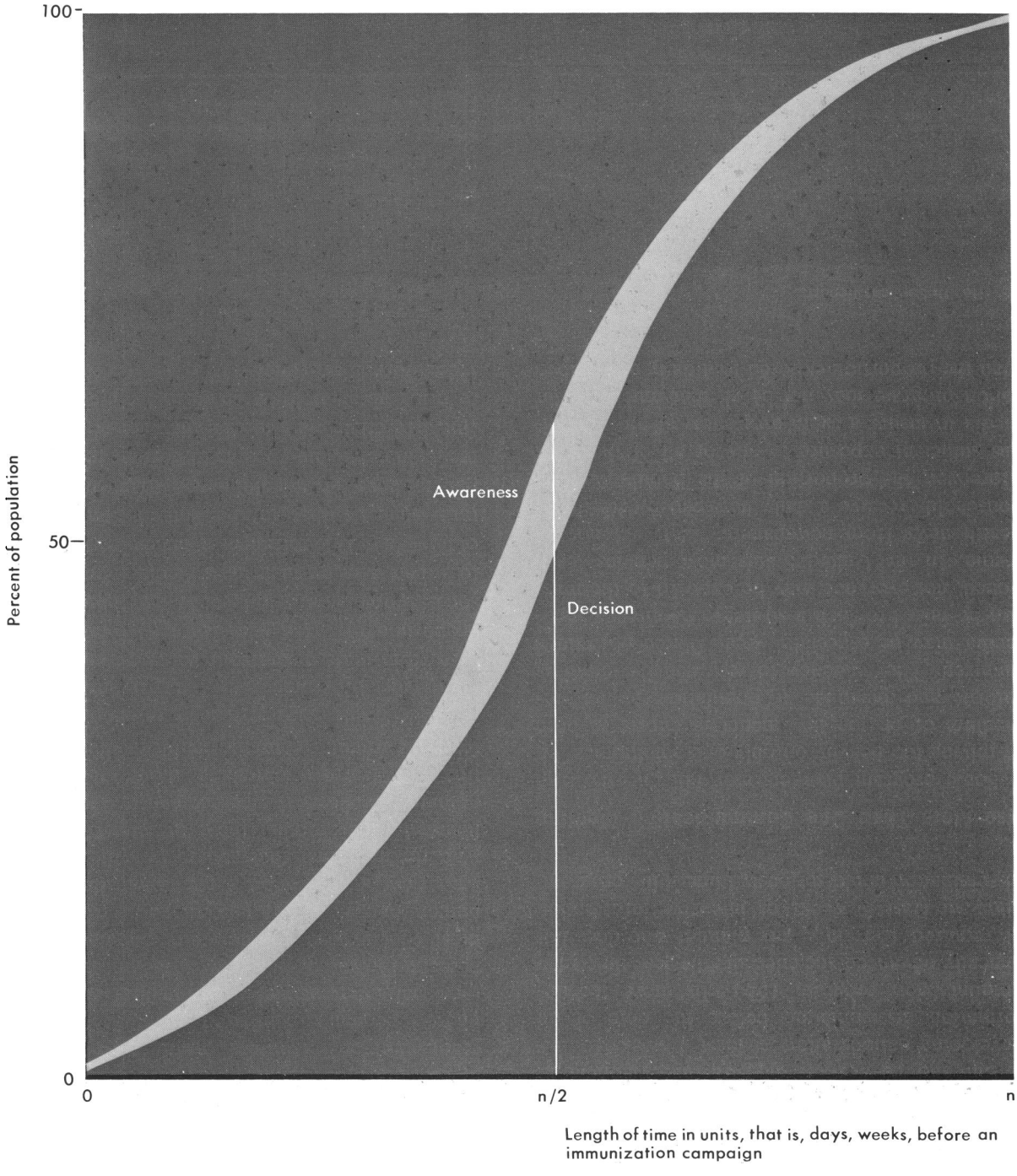
Some program planners may fall into the trap of relying too heavily on only one communication medium or on too few media in efforts to both inform and persuade a population to be immunized. The tendency to rely heavily on mass media may be especially great. Three objections can be raised to such a strategy. As already mentioned, not everyone may be exposed to the mass media. In the United States most persons learn health news from newspapers (*29*), yet not all households receive a daily newspaper (*30, 30a*). Moreover, the proportion of the population that has sufficient exposure to any or all of the mass media to insure a rapid awareness of an immunization program may not be all that much greater than the proportion exposed to a daily newspaper. In developing nations the exposure to a variety of media is much less than in the United States.

Mass media may prove helpful only in disseminating information about a campaign, not in persuading persons to attend. The idea that mass media alone cause direct, immediate, and substantial changes in human attitudes and behavior is, under many circumstances, a misconception. Each person brings to a potential communications situation a background of different social environments, cultural values, and relations to family and peer groups, a background which may determine his exposure to mass media communications, his retention of those communications, and his response to them.

Empirical studies of immunization programs support this contention. In a study of a campaign in four Honduran villages, Lin and Hingson (*2b*) reported that interpersonal communications were more important than mass media messages in persuading people to attend. A communication channel effectiveness score was calculated by determining a ratio of the number of persons relying on the same communication source for information about the immunization program in relation to the influence leading them to attend the program. Personal sources were most effective (83:93 percent), compared with 47:86 percent for local interpersonal disseminators and 20:47 percent for radio, which was the mass medium most widely used by the study population. The numerator reflects the percentage of respondents who were informed by a communication source who reported that that source was the most influential in prompting them to attend. The denominator reflects the percentage of the population who learned something about the program from a particular communication medium.

These results suggest that more people learned about the program from interpersonal sources than from mass media sources, and that a higher proportion of those who learned from interpersonal sources were influenced by those sources to attend than by such mass media sources as the radio (*2b*). D'Onofrio, in a review of the literature, suggests that in the United States, newspapers have greater influence than other mass media in persuading people to become immunized. But, like other mass media, they are not as likely to bring about opinion change as merely to provide information (*8a*).

Hypothetical diffusion in a target population of information about an immunization program and decisions to receive an immunization



NOTES: O = date of initial information dissemination
n = day of program if information dissemination began early enough to allow full information diffusion
n/2 = day of program if ony half the information dissemination time is allowed.

Katz and Lazarsfeld (*31*), Rogers (*28*), DeFleur (*30*), and many other communications experts agree that interpersonal communications may exert more impact than mass media in initiating or inhibiting social change. Compared with mass media communications, interpersonal communicators have these advantages: (*a*) they can spot and explain a misunderstanding to an audience more easily because of immediate audience-communicator feedback, (*b*) they can be more persistent in the face of resistance or apathy because they are not as easy to turn off as a radio or television, (*c*) they may be more difficult to avoid, (*d*) they can be better known to an audience and hence easier to trust, and (*e*) they can offer an immediate reward for agreement.

In fact, Klapper (*32*) leads a large body of opinion which maintains that mass media communication can have a persuasive impact only where (*a*) the issues at hand are not important to the audience, (*b*) mass media communications reinforce initial predispositions and proclivities of the audience, and (*c*) mediating factors such as predispositions, social ties, and personal influence opposing the mass communication are inoperative.

These results, however, do not suggest that mass media have no persuasive effect. Mass media dissemination in Lin's study appeared to be the most effective in informing those persons who learned about the program the earliest (*2c*). Many of these persons in turn informed and persuaded others to attend campaigns.

One can further argue that using more than mass media dissemination will increase the understanding and credibility of the messages (*8c*). If a person hears the same information and advice from more than one source, he will be more likely to believe and understand what he has heard. Studies of information diffusion have shown that those who obtain information often seek to check its veracity, regardless of the initial source of their awareness. A survey by Hingson and Lin (*33*) of female household heads during an immunization campaign in four Salvadorean communities revealed that almost one-third of the respondents sought information and advice about an immunization program from more than one source. Those who sought additional information and advice were significantly more likely to attend the immunization campaign than those who did not. Consequently, as many different communication channels or media as possible should be employed to inform and persuade people to attend an immunization campaign. This applies not only for hard-to-reach segments of the population but tor other segments as well.

Offer Intelligible, Believable Messages

To state that messages about an immunization program which are disseminated to the public should be intelligible, believable, and geared to the audience may at first appear to be simple-minded and pedantic. Unfortunately, this simple-minded, pedantic reservation is all too frequently overlooked. For example, a recent rubella campaign in a large eastern U.S. city centered its messages around the slogan "Rub Ella Out." Taxicabs and buses with posters bearing the slogan circulated throughout the streets for 3 weeks before the immunization date, and radio, newspaper, and television announcements focused on the same theme beginning 1 week before the program. Yet, on the initial date of the immunization program, only 3 percent of the target population appeared for immunization. The low turnout can be attributed, in part, to the unintelligible character of the slogan, "Rub Ella Out."

A spot survey of indigent mothers reporting to one of the city's pediatric clinics the day after the program supports this hypothesis. Of the 44 mothers interviewed, only 27 percent understood the "Rub Ella Out" slogan. Slightly more than 41 percent were aware of the immunization campaign before it took place. One mother, when questioned about the meaning of the slogan, conjectured that it had some connection with Ella Fitzgerald, the famous singer and entertainer. Another mother ventured that "Rub Ella Out" referred to a disease. When questioned as to which disease, she responded, "Ella." When asked about the severity of the disease if contracted, she replied, "It can kill you."

In setting up a mass immunization campaign one cannot expect all portions of the population to understand even relatively simple medical terms. Suchman, in a unique exploratory study in New York, found a lower level of knowledge and a higher level of skepticism toward professional medical care among persons with lower levels of education, persons who belonged to community groups that were highly exclusive ethnically, and persons who had friendship and family groups with strong, cohesive ties (*34*). This result, in

part, may be explained as arising from a breakdown in communication between such persons and the health care system. The inability of a target population to understand technical terms used in an immunization campaign is an example of such a breakdown.

Statements about an immunization campaign should be believable, also. Receiving immunizations should not be portrayed as an easier, more pleasant, less riskful act than it is. Moreover, the consequences of not receiving immunizations should not be dramatized to the point where the communication loses its credibility.

Failure to apprise a target population fully and accurately of the potential side effects and inherent costs of an immunization could prove detrimental to overall receptivity. If unexpected side effects do occur, rumors discrediting the program, as well as other public health programs, may arise. Although no specific examples of this phenomenon during immunization programs have been studied, the family planning literature is rich in discussions about the discontinuance of contraception for this reason (*35*). Because some immunizations produce annoying reactions such as fever, sore arms, and scars, announcements should be made that followup personnel will be accessible to care for those experiencing difficult complications. All those receiving immunizations should be cautioned about potential side effects.

Conversely, excessive use of fear-arousal techniques to increase attendance at immunization campaigns may also prove unproductive. Although some research tends to support the effectiveness of fear arousal in fostering health behavior (*36, 37*), other studies have reported little benefit from it, and some even suggest that fear-arousal techniques have a detrimental effect.

Radelfinger conducted a study in which he used fear-arousal techniques to persuade students at two California universities to receive tetanus injections. He reported that students in a group exposed to fear-arousing communications were not significantly more likely to obtain injections than those not exposed to such exhortations. Although the fear-arousal groups were likely to express greater verbal receptivity to immunization, this receptivity was not borne out by their subsequent actions (*38*). Unfortunately, so few students from either group received immunizations that the results are at best suggestive.

Levanthal and co-workers also investigated the use of fear-arousal to persuade college students to receive tetanus injections. They used a series of combinations of fear-arousing and informative messages. The authors concluded that even when accompanied by specific fear-allaying instructions, it is doubtful that there is any increase in acceptance once fear is raised above some adequate threshold (*39*).

In other studies not dealing with immunization, but with other preventive health behaviors, the authors have concluded that fear-arousal techniques may even lower the acceptance of preventive health action. Janis and Feshback examined the impact of various levels of fear-arousal concerning dental hygiene on a group of high school students (*40*). A control group was compared with a group receiving minimal fear-arousal messages in which the outcome of poor dental hygiene was verbally described and with a group in which high fear-arousal techniques were employed. The high fear-arousal techniques included showing vivid pictures depicting the outcome of poor dental hygiene. When students were questioned 1 week later, the minimum fear-arousal message had produced the most student-reported behavior conformity to the prescribed dental regimen. The authors concluded that the minimum fear appeal was more effective than the maximum fear-arousal techniques, at least in eliciting verbal compliance.

Hovland suggests several reasons that fear-arousal techniques may prove ineffectual. First, those exposed to the communication may minimize the threat. The threat may be perceived by the listener as improbable, inapplicable to himself, unimportant even if it occurs, or so temporally remote that he feels no need to bother about it until later. Moreover, Hovland suggests that even when a fear appeal succeeds in arousing emotional tension, it may fail to produce intended opinion changes because the communicator's reassurances may not be reinforced. The communicator's reassurances may be regarded as irrelevant to the threat, impossible to carry out, or only partially successful in averting the threat. As a result, the audience may fail to pay attention to what is being said, may become aggressive toward the communicator, or may try to avoid subsequent exposures to such anxiety-arousing messages (*41*).

Audience characteristics also affect the impact of a communication for other reasons. The edu-

cational level of an audience, its predispositions about the topic discussed in the communications, and its prior exposure to communications about a given topic have implications for (*a*) the use of one-sided versus two-sided communications, (*b*) for the effects of stating a conclusion in messages, (*c*) for the effects of the order in which information or advice is given within a communication. Unfortunately, studies on these aspects of message construction have not dealt with the topic of immunization and have been confined to laboratory experiments rather than to actual community programs. Nevertheless, some tentative suggestions for the immunization program planner can be drawn from this research.

In most of these studies, two-sided communications (that is, those that explain arguments favoring and arguments opposing a given issue) have been reported to be most effective in persuading people to adopt a given position over time. From a study of messages that were given to a group of soldiers about the probable length of World War II, Hovland and co-workers (*41a*) concluded that one-sided arguments were effective only for less educated men with undeveloped skills in critical thinking; two-sided communications were more effective for more educated, more critical men. One week after messages were given to soldiers, some of them were exposed to arguments running counter to the messages. The results of a post-communication survey were also summarized. Hovland and co-workers indicated two circumstances in which a two-sided presentation is more effective in the long run than a one-sided communication: (*a*) when regardless of initial opinion an audience is exposed to subsequent counter arguments and (*b*) when, regardless of subsequent exposure to counter arguments, the audience initially disagrees with the communicator's message. The one-sided presentation is more effective only when the audience agrees initially with the communicator's position and is not later exposed to counter arguments (*41b*). In planning an immunization program one should therefore seek to ascertain the existing predispositions of an audience. Controversial topics should be presented in two-sided messages.

The effectiveness of allowing an audience to draw its own conclusions from messages has been compared with the effectiveness of explicitly stating a conclusion about the implications of the arguments within messages. Hovland and co-workers also suggest that variations may arise depending on the communicator's credibility, the kind of audience, and the kind of issue presented. Nevertheless, these researchers hypothesize that in persuasive communications about a complicated series of arguments on impersonal topics, it is generally more effective to state the conclusion explicitly than to allow the audience to draw its own conclusion (*41c*). In a more recent review of the research in this area, however, Cohen reports that later research has not confirmed the earlier observations. He suggests that many problems need to be investigated before one can fully understand the conditions under which explicit rather than implicit presentations are more effective in producing attitude changes (*42*).

The effects of the order of presentation of arguments for and against a position were presented: the effects of presenting arguments favoring the position first were compared with the effects of presenting arguments opposing the position first. In an extensive review of the research on this topic, Cohen concluded that the literature seems to exclude any universal rule that giving favorable arguments first is the most effective way to construct messages. He maintains that coming first makes a statement no more likely to be remembered, but does make it more likely to be believed. Moreover, some conditions may alter these effects. These conditions include time of measurement, similarity of issues, contiguity of presentation, number of separate issues, experience with the communicator, warnings against premature commitment, encouragement toward commitment, and ambiguity inherent in the sequence of communication (*42a*).

In sum, the recommendations about message construction that can be offered to administrators planning immunization programs are at best tentative. The literature in this area is replete with contradictions, and most of the studies have been laboratory experiments dealing with messages not related to immunization programs. Nonetheless, one can concretely conclude that messages must be intelligible to the target population and that they must be believable. Messages should avoid technical terminology. Communications that describe immunization as an easier, more enjoyable experience than it actually is probably offer little additional persuasiveness and may be detrimental

to the credibility of the communicator. Similarly, messages which use fear-arousal techniques may prove counter-productive if the consequences of failure to receive immunizations are dramatized in an excessively emotion-arousing manner. Also, one can suggest that communications to the target population should include discussion of the pros and cons of issues that might be the subject of controversy in a target population.

Encourage Discussion of the Program

If members of the target population discuss the program with each other, diffusion of information about the program may be more rapid and complete. In addition, such discussions appear to make persons more committed to becoming immunized. Hingson and Lin, in their study of a mass immunization program in El Salvador (*33*), reported that those who sought or relayed information or advice about an immunization program to others were significantly more likely to have attended the program than those who did not. This participation in communication can serve several purposes. The person may learn more about the program; be able to correct misinformation received previously; be able to gain assistance with transportation to the immunization center or with care for his home or children while the immunization is being received; and be better able to assess the likelihood that others will attend the program. While some of these functions may be positive, others could conceivably be negative. Negative rumors and misinformation could be communicated. Future research should attempt to uncover the degree to which such behavior occurs.

In addition, the research should seek to determine the effect of the person's discussing the program with others at different stages in his acceptance of the program. Presumably, the impact of discussion would be different for someone who is just learning about the program than someone who has decided to attend. In any event, preliminary evidence does suggest that discussion with others seems to provide positive reinforcement to attend immunization programs.

Evaluation

The communication campaign should be evaluated before and during the immunization program. Because my recommendations are tentative and target populations vary widely during immunization campaigns, attempts should always be made to determine the effectiveness of communication efforts during the communication phase of a program. Such an effort should ascertain how effective the initial communication strategy has been, uncover any problems with the information campaign, and devise measures to overcome impediments to the success of the program. Special attention should be devoted to determining (*a*) whether the members and subgroups within a population have become aware of the immunization campaign; (*b*) if they have learned its purpose, how to attend, and any other relevant information about the program; (*c*) if they have been persuaded to attend; and (*d*) if any rumors or arguments opposing the program have arisen.

Evaluation of communication efforts should be done before the actual immunization program; emphasis should be put on quick analysis of results. Frequently, administrators rely upon initial turnouts at immunization centers as the basis for assessing communication efforts. By waiting until this stage they usually do not allow time for alterations in program strategies to have an impact. To obtain data that can be rapidly assessed and acted upon, small spot surveys should be undertaken focusing on segments of the target population known or suspected of being the most difficult to inform and persuade. Because the purpose of the surveys is to obtain quick feedback for the program administrator, the efforts should not be so extensive or intensive that they could hamper the quick return of information.

Make Attendance Easy

To make attendance as easy as possible, the program planner should choose convenient hours for the target population. For this reason, in the United States, Sundays have been most frequently selected for conducting immunization programs. If immunizations must be given during the week, immunization centers should be open during both daytime and evening hours to insure that those who cannot leave their jobs will have an opportunity to attend. In a survey of an immunization program conducted during weekdays in El Salvador, Lin and co-workers (*5c*) reported that 30 percent of those who did not attend failed to do so because they were ill or had conflicting obligations on the day of the program. To accommodate this difficulty, administrators should allow more than 1 day in each locale for followup of

those not immunized.

Immunization centers should also be located so as to facilitate program attendance. They should be centrally located, close to public transportation, and in buildings known to all members of the population. Places where people normally congregate—public buildings, markets, and schools—are ideal. In a spot survey during a recent immunization program in a large eastern city, it was found that 74 percent of the respondents did not know the exact locations of immunization centers. The name and address of all immunization centers should be published in advance of the program. Any changes in time or location should be publicized as soon as possible, and a responsible official should be at the original site at the time originally specified to refer persons who might not have learned of the change (*5c*).

Receptivity as Behavioral Process

The relevance of these suggestions will perhaps be better understood if one regards the seeking of immunizations as a behavioral process. The process of participating in an immunization program can be divided into three stages—initial awareness of the program, decision making, and decision actualization. The initial awareness stage, when a person first learns of an immunization program, begins with the initial official efforts to disseminate information about the program and ends when the person first learns about the program. The decision-making stage, when a person decides if he ought to be immunized, begins when he initially learns about the program and ends when he has firmly decided he ought to attend. The decision actualization stage, when a person actually takes steps to attend, begins when he has decided he ought to be immunized and ends when he finally receives an immunization.

This conceptualization follows the work of Cartwright, who in the 1940s suggested that to influence any behavior a chain of processes must be initiated. One must create a particular cognitive structure, a particular motivational structure, and particular behavioral structures (*43*).

Although these three stages usually occur in the sequence outlined, the stages may vary with each person as to the duration of the stage and the behavior exhibited. Moreover, some persons never pass through all three stages.

It is necessary to regard immunization receptivity as a process of behavior if one is to obtain a full appreciation of the reasons why some persons failed to be immunized. Otherwise, one does not know whether the failure to receive an immunization results from failure to become aware of a program, failure to come to a decision that immunizations are desirable, or failure to act once the person has come to such a decision.

Future research examining the receptivity to mass immunization programs needs to explore how the variables associated with such receptivity affects behavior during each stage of the process. At this point we know that mass media are generally the most effective channels of communication in making people aware of immunization programs and that interpersonal sources are the most effective in persuading people to decide they ought to be immunized. It is also known that persons of higher socioeconomic status, especcially those of higher education, are most likely to be those in a community who learn earliest of an immunization program, but these same persons, in general, take longer to decide that immunizations are desirable (*26a*). Moreover, a great deal is known about constructing messages to persuade people that immunizations are desirable. Finally, based on the evidence to date, one can predict that variables that affect ease of attendance—hours of the program, accessibility of the center, a person's knowledge about attending—have their greatest effect on behavior during the stage of decision actualization.

But our knowledge about the process of receptivity is far from complete. For instance, one can ask whether other demographic characteristics are more likely to affect a person's awareness of a program, his decision to attend, or his attempts to act on that decision. Do a person's health beliefs have a greater influence upon awareness, decision making, or actual attempts to carry out decisions? Is it possible that a person's health beliefs change as he passes through the process of immunization receptivity. If so, how does that affect his behavior? Do health beliefs, demographic variables, and social influences have the same impact relative to each other at each stage in the process, or are some factors more important during some stages and less during others? These questions and many others can be raised if one regards immunization receptivity as a process of behavior. One realizes then also how limited our knowledge is of the reasons why people attend immunization programs.

Nevertheless, regarding immunization receptivity as a behavioral process does illustrate that obtaining attendance at a mass immunization program rarely can be accomplished merely by informing people about the program alone, using persuasive communications alone, or making attendance easy and convenient alone.

To achieve adequate attendance by the target population, the administrator must help each person pass through the three stages of inital awareness, decision making, and decision actualization. Measures to foster a person's passage through a single stage may not insure adequate program attendance. The administrator has to focus on all three stages—informing the population, persuading them to attend, and making attendance easy. Moreover, he has to make efforts to see how well these objectives are being accomplished before the actual immunization begins. Failure to administer all of these tasks can seriously jeopardize the success of an immunization campaign.

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HINGSON, RALPH (Boston University School of Medicine): ***Obtaining optimal attendance at mass immunization programs. Health Services Reports, Vol. 89, January–February 1974, pp. 53–64.***

The failure of many persons to be immunized against communicable diseases often can be attributed to problems in the communication strategies that attempt to persuade people to attend immunization campaigns. Although there has been considerable research examining why people fail to obtain immunizations, the literature presents the program planner with a bewildering set of contradictions and debates. In translating reported research results into practical guidelines for persuading target populations to attend mass immunization programs, it is suggested that program planners (*a*) know and study the target population before an immunization campaign; (*b*) begin communication announcements about the campaign early, preferably 3 to 4 weeks before the actual program date; (*c*) use a variety of communication media to disseminate messages about the program; (*d*) disseminate messages that are intelligible, believable, and geared to the predispositions and knowledge of the target population by avoiding excessive use of technical terminology and fear appeals; (*e*) encourage members of the target population to discuss the program with each other; (*f*) make efforts before and during the immunization compaign to evaluate the communication strategies used; and (*g*) attempt to make attendance as convenient and easy as possible for the target population.

It is also suggested that researchers and administrators regard the receptivity to immunizations as a behavioral process that entails for each person: (*a*) learning about a program, (*b*) deciding he ought to attend, and (*c*) carrying out that decision. Researchers need to explore what predicts behavior during each stage of a mass immunization program, and administrators need to strive to inform the population, persuade the population that immunizations are desirable, and facilitate attendance.