

Application of Health Education Methods to Achieve Higher Immunization Rates

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THE FAILURE TO ACHIEVE protection for one-third of the U.S. childhood population against major preventable diseases can only be termed child neglect on a national scale. In addition, it is an unnecessary expenditure in these times of burdensome and escalating health care costs, because immunization programs have repeatedly demonstrated that every dollar spent saves many multiples of that dollar in costs of disease care (1, 2).

With the basic soundness and success of the immunization principle demonstrated so widely, so repeatedly, and so publicly, one might expect the public to be clamoring at the doors of health providers, demanding protection against diseases that still produce deformity, disability, and death. Current statistics, however, reveal national immunization rates in children to be about 60 percent for diphtheria, pertussis, tetanus, poliomyelitis, measles, mumps, and rubella, with rates of 50 percent or less in inner-city, disadvantaged populations; some children 1-4 years old have not had one dose of the three needed for protection against poliomyelitis (3).

Following the introduction of killed injectable vaccine in 1954 and then live oral poliomyelitis vaccines (OPV) in 1961, community OPV campaigns in 1962-64 brought the immunization level in preschool children to 88 percent. Now, in a little more than 10 years, the level has fallen to less than 75 percent of that attainment. If this trend continues, epidemic poliomyelitis may recur in the United States (4). Twenty-five years ago we experienced nearly 58,000 poliomyelitis cases in 1 year (5). If a poliomyelitis epidemic recurs, the resultant suffering, demands on the medical care system, and costs of care would clearly delineate the issues.

Health education is vital for the preparation of both the consumer and the provider if we are to achieve better immunization rates. The consumer who lacks a basic understanding of the immunization

process, of the usual diseases for which it is used, and of the concept of risk-benefit cannot be educated in a few minutes in the provider's office, nor is it a reasonable use of provider-auxiliary time to "start from scratch" routinely. This basic information must be imparted to all young people during their school years, and the knowledge of the adult community must be regularly updated by a variety of public information methods. The methods and materials used should motivate the public to make a judgment of the value of immunization for family health and to make the necessary effort to receive these services.

For those providers who believe that immunization is unquestionably good, some education is necessary to make them aware of the value of an informed patient who exercises the right of choice or even rejection of care. We do not deny that our motivation as health professionals is to influence the consumer toward the decision for immunization; however, we must ensure that the patient's decision is a fully informed one. The ethical boundaries of this dilemma need further multidisciplinary exploration.

We shall now examine the problem in light of the principles of health education and explore the possibilities for the application of its methods. We include in the scope of health education the matters of (a) informing the public, (b) influencing the popu-

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lation to take an active part in understanding its needs, setting its priorities, and behaving in accordance with its perceived best interests, and (c) influencing providers of health care, both private and governmental, to consider how they can more effectively achieve their stated goals and their mandated responsibilities (6).

A Long-Term Problem

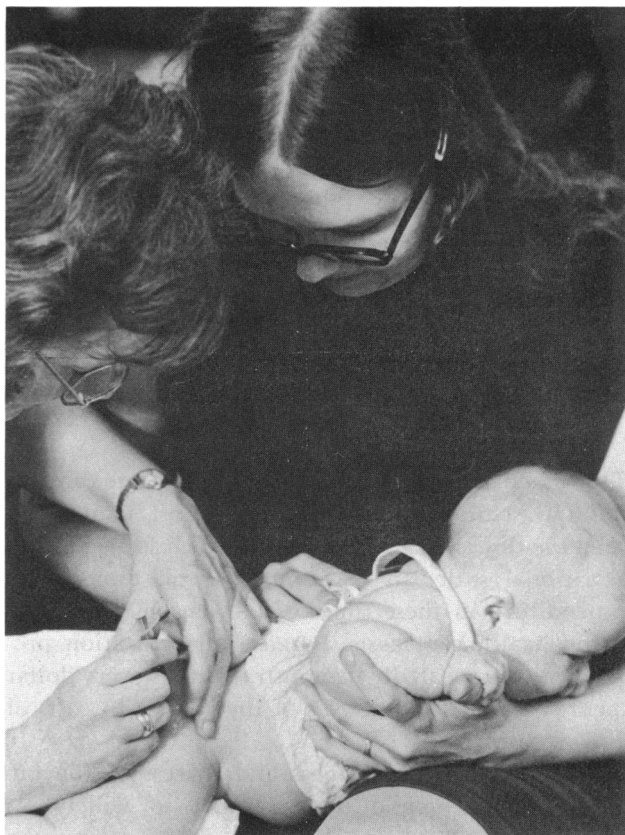
One crucial difference from mass and selective immunization against smallpox, which has almost been eradicated, must be understood. In contrast to smallpox, for which neither carrier state nor inapparent infection exists, the agents for all the diseases considered here are endemic in the population and all except measles have either carrier state or inapparent infection, or both, may be carried by the immunized, or they are omnipresent in the environment (tetanus). They will not disappear. Thus, to the best of present knowledge, immunization programs will be needed over decades until few cases of the disease are reported, and they must continue into an era with diminishing public and provider memory of past epidemics.

The nature of these diseases requires a system of stable financing, public understanding, and incorporation into general health care rather than episodic intense campaigns followed by periods of apathy. The last decade repeatedly has shown the correlation of decreased Federal funding for immunization with rises in reported disease (3). For example, following a low of 22,000 reported cases of measles in 1968 (compared to nearly 500,000 reported cases of measles annually in the pre-vaccine era), Federal support dwindled and more cases of measles were reported—75,000 by 1971 (3, 4). By 1977, little progress was made in the control of measles, a disease that may result in severe complications (7, 8).

Barriers

A foremost principle of health education is that taking action requires motivation, including knowledge and convenient, affordable access to services. Parents are more likely to take a particular health-related action (that is, routine immunization) if they consider the disease or condition a serious threat to their children (9, 10).

Almost none of today's young parents personally know anyone who had poliomyelitis, diphtheria, pertussis, or tetanus; they were not old enough to read newspapers at the time of the large poliomyelitis epidemics. During the 1964 congenital rubella disaster, today's mothers were in early grade school.



Thus, there is nothing in their personal experience to create a perception of the serious threat to health that the nonimmunized state creates.

Episodic newspaper accounts of sporadic cases or small epidemics in a distant part of the country are quickly superseded in consciousness by daily accounts of more frequent and larger-scale disasters. Indeed, for those living in slum areas, the hazards of daily life and the pervasive violence in the environment are, in fact, far greater risks than the preventable diseases.

The public's perception of threat from the immunization process is a recent negative factor of unknown strength. This threat surfaced in a legal trial concerning a case of paralytic poliomyelitis that occurred after the patient received oral poliomyelitis vaccine (3). Despite expert testimony indicating coincidence rather than cause and effect, and in the absence of any defect in vaccines or error in procedure, the substantial monetary settlement awarded to the plaintiff was conducive to the general impression that the vaccine caused the disease. An actual risk does exist, about 1 case of poliomyelitis for every 4 million doses of vaccine administered. However, that risk is often related to the special response of the in-

dividual with an immunological disorder that is commonly unrecognizable or preclinical. Furthermore, the recent swine influenza program with its attendant professional disagreements, alleged disease complications, and liability problems must have diminished public confidence in the safety of immunizations.

All the barriers to the receipt of general health care also may play a role as barriers to immunization: lack of availability, lack of accessibility, lack of financing, and so on. For the disadvantaged person with many more urgent struggles or demands, immunization simply may not be a priority.

Low immunization rates indicate that unimmunized infants are not receiving even minimal general preventive services—no growth assessment, no nutritional advice, no early detection of remediable defects, no counseling of parents about safety, growth, and development needs, no attention to family or social problems, and none of the well-known measures to improve health. This gap in care and service is reflected in the high rates of post-neonatal mortality in the United States and the extremely high rates in nonwhite infants. It potentiates the immunization problem, because incorporation of immunizations into routine care for all infants probably represents the only approach that is workable on a long-term continuing basis.

The existence of an adequate and continuing supply of the necessary vaccines is threatened now. Many former vaccine manufacturers have withdrawn from production under pressures of liability risks, vaccine development costs, and uncertain financial returns. Only one pharmaceutical house currently produces oral poliomyelitis vaccine (OPV) and only one produces measles-mumps-rubella (MMR) vaccine. Apparently, a national immunization policy and some measures of Federal support will be required to assure adequate supplies (3).

A review of the literature on individual decision making and behavior regarding immunization revealed many aspects of the individual psychological construction as well as the influences of the social environment. It is difficult for "now" persons to accept an immediately painful treatment for prevention of an illness that may never occur. The family, peer groups, and authority figures may provide the impetus to the effort for immunization or they may create barriers to such action (11).

Barriers also exist in the lifestyle of some segments of the population, especially those who feel threatened by technology and science in general and thus may reject a specific issue such as immunization (11).

In Sweden, for example, two cases of poliomyelitis (one paralytic) were reported in nonimmunized children whose families were members of the Anthroposophy sect, a group that emphasizes a natural lifestyle (including sewage treatment so natural that one family's home had 6 inches of accumulated raw sewage in the basement). Although the people of this sect neglect—rather than oppose—poliomyelitis immunization, the immunization rate among their children was about 65 percent (similar to the U.S. rate) in contrast to the more than 99 percent immunization rate in other school children in their district. The many nonimmunized case contacts who were excreting live poliovirus were a continuing hazard to the community (12).

Religious or conscientious objection to immunization is recognized and accorded the right of exemption in most of the 48 States that mandate immunization for school entry. Several of these, however, also provide for exclusion from school of the nonimmunized when necessary. For example, this regulation was recently enforced in Ohio (13). After poliomyelitis occurred in a nonimmunized 9-year-old girl whose parents were religious objectors, 34 nonimmunized children were excluded from school for 11 days, because they were potential incubators and spreaders of the disease. Thus, conscientious objectors and others are not relieved of the responsibility of guarding against transmitting diseases to the remainder of the community.

While physicians ponder ways to educate patients about immunization and manufacturers ponder ways to maintain their role, the concerns of both have been heightened by evolving new definitions of consent procedures. Such procedures have now been defined by some courts as including information about risks, benefits, and alternatives that a "reasonable" person would wish to know. These court definitions often demand more than the customary information formerly issued by the medical community; they apply to immunization as well as other treatments. A procedure should be taken after medical judgment that the particular immunization is appropriate for the particular person; information must be given about conditions that would be contraindications. The receipt of information, understanding of information, and agreement to the procedure should be acknowledged in writing by the patients.

Perhaps physician apathy toward immunization is increasingly more common. Among the reasons for this apathy is that most physician graduates of the past 10 years have never seen a patient with diphtheria, pertussis, tetanus, or poliomyelitis, and infrequently

one with measles or rubella. Thus, these physicians receive little gratification from promoting immunization: there are no testimonials to their skills, patients are not particularly grateful, and the financial return above cost is modest. They are not trained to measure and evaluate the level of immunization among their patients, and there are no negative sanctions if the level is low. Customs in private practice and the practical difficulties of outreach in publicly provided service oppose effective use of a reminder system. The current liability climate may also be a barrier to active promotion of these procedures.

Pronouncements of public health personnel sometimes inadequately emphasize the importance of the relationship between the health care provider and the patient. We believe this relationship is the critical factor in attaining high rates of child immunization in either the private or public setting. The issue is not in which sector the encounter occurs, but rather that it does occur. People are not eager to repeatedly expose themselves or their children to somewhat painful procedures, but they can be cared for in such a way that they will seek and find satisfaction in continuing care and will generally accept pertinent advice.

Strategies

After more than 50 years of immunization services and programs, few studies have assessed the effects of informational programs and media usage. We may question the rate of intensity of a continuing information campaign aimed at all age groups, when adults need act only rarely, according to current schedules. Except in special circumstances, adults need only one immunization (tetanus-diphtheria) every 10 years, whereas each child needs a total of about seven multiple-dose immunizations, mainly in the preschool years. Therefore, the educational approach should be different from that aimed at behavior patterns, such as eating, exercising, or taking medication. Since medical advances and recommendations are in a constant state of flux, it may be more beneficial to encourage the use of a regular source of care, to encourage personal recordkeeping, to educate at strategic times, and to build reminder systems into institutions such as schools and workplaces that already keep health records. Additionally, health educators should stress the aspect of social responsibility of protecting not only oneself but others, by guarding against diseases and sources of infection. We can indeed ask whether it is ethical to be a link in the chain of poliomyelitis or diphtheria and thus stimulate reflection on the matter.

It is perhaps impossible to effectively motivate people on the basis of the threat of disease, except when an epidemic occurs. We have forgotten the iron lung. The public forgot poliomyelitis, diphtheria, and whooping cough 20 years ago. The memory of an epidemic lasts only about 2 or 3 years.

Among motivations which we can consider tapping are the following:

- In today's smaller family, the expectations of optimal health for all.
- Pride in providing the best care for children and sparing them disease and discomfort.
- It is far easier for a parent to have a child immunized than to have to nurse a child with a contagious disease.
- Avoidance of the risk of seriously deformed children due to rubella. This appeal can be renewed directly to the teenage girl.
- Expectation that basic preventive services, including immunization, be part of all health insurance plans. Insurers are now getting a "free ride" in this area, because they usually do not pay for immunizations. However, they would be paying much more for treatment of disease if such programs did not exist.
- Among special groups, such as teenage parents, peer group experiences can be used. There are always some who readily accept such service as infant immunization, and these persons influence the others.
- Consumer perception of a "best buy" in the form of a complete and satisfying visit. The parent has expenditures of time, money (at least for transportation), and effort, as well as psychological expenditures in overcoming fear of professionals or of pain to the child. These expenditures are similar whether the visit is for an immunization or for full preventive care. The full service can and should include health appraisal, attention to parental needs, including practical help; emotional support, praise for effort and confidence building in the parental role; laboratory tests when needed; and relevant information and immunization records for parents to keep.

Positive experiences with the individual physician and all clinic or office staff result in confidence and acceptance of future advice and care and readiness to turn to these sources for help or referral. Patients develop an increased capacity for mutually helpful and gratifying social interaction. They should also be informed of their responsibilities in participating in the health care system—making and keeping appointments so that all may share fairly in available time, making an effort to understand health care and asking questions if they do not, and carrying out

their share of responsibilities in care. It has been our experience that this kind of care, which affirms the patient as a person with dignity who merits courteous and individually considerate care, has resulted in high rates of the use of preventive care service by persons of all backgrounds.

Timing

The most effective timing for education efforts in building responsibilities for participation in the health care system is perhaps in the prenatal program and then directed to parents of the newborn as part of the broader goal of assuring entry into a system of regular infant care. In high-risk populations, outreach is essential to accomplishing this goal. Presently, outreach is the weakest link in the chain, although the postnatal period is potentially the most rewarding time for education and intervention.

With modest effort, reinforcement can be given at entry to kindergarten or first grade. In a study comparing three techniques at school level, the most effective method was a review of individual immunization records and a specific invitation to parents to send incompletely immunized children to school-based clinics plus followup of parents who were slow to respond. This method proved superior to distributing an immunization pamphlet or distributing permission slips to all parents for school-based clinics (14). This method accords with the principles of evaluating the particular client's need, of involving him in recognition of the need, and of providing services without demanding effort disproportionate to the apparent benefit.

State Legislation

Laws have been passed in 48 States that require immunization for entry into school. These laws also constitute a form of education, because they express a requirement that each child be maintained so that he or she does not constitute a hazard to the community. Provisions for exemption on medical, religious, or other grounds has been made in most States, and experience has been favorable. Texas, for example, in 1970 had 53 percent of the U.S. diphtheria cases and 79 percent of the U.S. poliomyelitis cases. A mandatory school immunization law was passed the following year and followed up by active health department surveillance and enforcement. By fall of 1973, more than 92 percent of the students in Texas were immunized against all the designated diseases. An educational campaign then was directed to the school systems to assure necessary parent involvement, immunization surveillance, and reporting.

Along with implementing the school law, Texas has (a) conducted a sustained educational campaign, an infant immunization surveillance program, and outreach activities; (b) made immunization without financial barrier available throughout the State; and (c) stimulated private physicians to increase their immunization activity (15). Such a comprehensive, multi-targeted and integrated approach may serve as a model to the nation in its effort to provide all children with protection from major infectious diseases.

The challenge for Texas, as for the rest of the United States, is to maintain the necessary levels of financial support, public interest, and professional activity to sustain this success when memory of the epidemics has faded and the novelty of the campaign is gone. In contrast to the monotonously recurring backsliding of our recent history, perhaps the vigor of this State's immunization drive will demonstrate how to consolidate the gains for the coming generation.

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