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CHILDHOOD IMMUNIZATION AS AN IMPETUS TO PRIMARY HEALTH CARE

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SUMMARY

The Alma-Ata Declaration on Primary Health Care, as its principal tenet, affirmed that essential health care, as a basic human right, should be universally accessible at a cost that individuals and the community can afford. "Essential health care" is broadly defined to include a range of promotive, preventive, curative and rehabilitation services.

To provide the range of essential services envisaged at Alma-Ata will require a quantum change in the structure and nature of health care systems in virtually all developing countries. In most such countries today, health services of any type are available to only a proportion of the population, none of whom are afforded more than a few of the essential services; resources everywhere are limited both in quantity and quality. Projects which have so far been undertaken to develop broadly-based primary health care systems have proved to be both disappointing and costly. Moreover, many health officials, confronted with all too modest resources and managerial skills, have viewed the Alma-Ata objectives as utopian, beyond realization and sometimes beyond comprehension. Frustration in their inability to realize the revolutionary totality of change has engendered paralysis.

Needed are initiatives to define first steps in what is clearly a long journey. Experience in other community-based programs for health care as well as in other development sectors shows that the limiting constraint is institutional and managerial capacity. A strategy which explicitly addresses this constraint is both logical and necessary.

To build institutional and managerial capacity requires the practical experience gained in the execution of a program. Programs best equipped to do this are those with clearly defined and measurable objectives and which, at first, involve a few rather than many interventions. An ideal choice is a program emphasizing childhood immunization whose ultimate objective is to embrace other effective but inexpensive health measures. In the process of implementing such a program, certain of the objectives set forth at Alma-Ata will be realized. More important, an institutional capacity will be developed and a structural and managerial framework evolved which will facilitate ultimately the realization of the Declaration.

PRIMARY HEALTH CARE - AN IMPORTANT BUT DECEPTIVELY SIMPLE CONCEPT

Knowledge and technology is now available to prevent or alleviate a substantial number of health problems extant throughout developing countries. However, even now, only a small proportion of those living in developing countries have access to the most basic of essential health services. Resources allocated to health by governments and donors alike have been meager and, until the past decade, have been heavily concentrated in the development of expensive curative services, e.g., hospitals, which serve a comparatively small number.

Recognition of the need for a fundamental change in a development policy for health culminated in 1978 in the Declaration of Alma-Ata. This Declaration enunciated a set of principles which give priority to the extension of affordable basic health services throughout the population. Defined as "primary health care," the services envisaged include at a minimum (Mahler, 1981):

- o "education concerning prevailing health problems and the methods of identifying, preventing, and controlling them;

- o "promotion of food supply and proper nutrition;
- o "an adequate supply of safe water and basic sanitation;
- o "maternal and child health care, including family planning;
- o "immunization against the major infectious diseases;
- o "prevention and control of locally endemic disease;
- o "appropriate treatment of common diseases and injuries;
- o "provision of essential drugs."

The objectives are laudable in that they shift the health strategy toward the provision of more cost-effective measures for all in the population from expensive curative programs available for the few.

The difficulty in providing the array of services encompassed by the deceptively simple phrase, "primary health care" must not be underestimated, however. Although industrialized countries now make such services available to all or most in their populations, they do not offer suitable institutional models for others because they utilize prohibitively large resources in money and manpower. The Declaration does not elaborate on possible institutional structures and experience to date in the development of appropriate capacity has provided little guidance.

Over the past decade, support has been provided for the development of a number of primary health care projects, but the results have been disappointing. A recent analysis of experience with 52 primary health care projects (APHA International Health Programs, 1982) reveals how extraordinarily difficult it has been to translate principle into reality. As the report describes, it is, intrinsically, a formidable task to provide essential support services to numerous and scattered health

service points which characterize a community-based program. Project plans have uniformly failed to recognize a multitude of practical problems encountered in implementation; all have been far behind schedule and recurrent costs have been substantially greater than anticipated. Most important is the observation that institutional capacity to organize and manage such programs is woefully inadequate - a problem which all but precludes innovative solutions and program evolution.

The findings documented in the above report are reaffirmed by a recent analysis of World Bank projects (Israel, 1983) which reveals that the development of health delivery systems has been among the most difficult and least satisfactory of any sector. Primary health care systems are not separately discussed, but of all health delivery systems, these require the most sophisticated institutional structures. In broad outline, a primary health care program requires that services be offered by large numbers of persons working alone or with a few others in widely scattered locations. Inevitably, in such circumstances, supervision and measurement of progress is difficult, the distribution of necessary vaccines, drugs and supplies is complex, and approaches in rendering services must be varied from area to area to take into account varying cultural factors and political realities. To date, programs with characteristics such as these have frustrated the best and most competent efforts of those concerned with institutional development in all sectors - and, no less, those concerned with primary health care. The problems and levels of success contrast sharply with experience in institutional development where other characteristics pertain, such as in industry, telecommunications and plantation-type agriculture.

A STRATEGY FOR THE DEVELOPMENT OF A PRIMARY HEALTH CARE STRUCTURE

Given their nature, the development of necessarily innovative and effective primary health care structures cannot follow simple blueprints, nor will they be rapid in evolution, nor will the strategy be wholly replicable from country to country or even from one area to another within the same country. To date, however, little attention has

been given to the examination of possible solutions. Indeed, the intrinsic difficulties of institutional development in this sector have tended to be minimized or ignored.

At present, health delivery systems in many developing countries are inadequately funded, poorly managed, primarily concerned with curative procedures and lacking in systems to evaluate performance. For the resources and manpower provided, productivity by almost any measure is poor. Most are ill-equipped and poorly structured even to provide curative care. At the same time, efforts to define a more appropriate system have provided little instructive guidance. Most have been of the "pilot project" type, usually located outside of the agency with program responsibility and rarely able to be replicated beyond the immediate area concerned. Indeed, as many have noted, the health landscape is strewn with small pilot projects.

A new development strategy in health is needed. Instructive in devising such a strategy is an analysis by Korten (1980) of the factors involved in the evolution of five Asian rural development projects in different sectors. He concludes that the most successful have been those characterized by "an organization with a capacity for embracing error, learning with the people and building new knowledge and institutional capacity through action." In such programs, changes in approach and definition of goals have been an ongoing process as the program adapted flexibly to unanticipated local realities and opportunities.

Important conceptually is Korten's focus on the development of institutional capacity rather than on the execution of traditional "blueprint" projects, elaborately preplanned, completed within a finite time frame and carefully specifying all resource requirements in advance. Although, as he notes, the project approach has served well in industrial development, for example, he believes it to be counterproductive in the building of institutional capacity necessary for community-based programmes such as those in the health delivery sector. These latter require flexibility, a latitude to be opportunistic and a sustained commitment of interest and resources.

If it is accepted that the development of a primary health care system requires that priority first be given to building institutional capacity, attention may be directed to identifying which program services will best serve this end rather than trying to devise methods to deliver whatever products or services may happen to be available or superficially attractive. Logic suggests and experience shows that "fewer services in the early period of implementation should be provided.... Specific, well-defined primary health care projects with limited goals and objectives and selected interventions of proven effectiveness have the best chance of becoming established and of effecting improvements in health" (APHA International Health Program).

The array of primary health care services envisaged differ greatly in character and require quite different approaches in their delivery. They may be divided into two broad groups: (1) services for individuals who become ill and seek relief (curative services); and (2) services for individuals who are not ill (immunization, health education and other preventive measures).

Curative services are usually provided by medical and/or paramedical staff working in health centers and hospitals and by such as traditional healers. Characteristically, those who are ill will travel considerable distances in hope of obtaining relief. Thus, a curative health center, for example, might attract patients from a catchment area which is 10 to 15 kilometers or more in radius. However, the provision of basic but adequate curative services poses an array of difficult problems, including those of training and supervising large numbers in the diagnosis and therapy of many different diseases and of providing quantities of a diverse array of drugs and biologicals. Moreover, even when such programs are financed, in part, by recipients, the costs to government compared to benefits have invariably been great and the logistics formidable.

The second category of services are those which are offered to individuals who are not in ill health and include such as immunization to

prevent illness, education regarding the use of oral rehydration solutions when diarrhea occurs and family planning materials. For almost every intervention of this type, the benefit-cost ratios are high, often extraordinarily so; the cost of the illness or the death or disability caused by vaccine-preventable disease, diarrhea or the unwanted pregnancy being far greater than the cost of prevention. Delivering these services, however, poses special problems. Healthy individuals in a community are not strongly motivated to seek such services. In rural areas, for example, few will travel more than a few kilometers to a health clinic in order to obtain vaccination. Even among those living near a health center, attendance to obtain preventive services is proportionately low in the absence of continuing, effective promotional campaigns. Moreover, experience shows that in health centers, curative care receives first priority in time and resources; other activities of a preventive nature are conducted only if specially promoted and supervised.

Not surprising is the fact that successful prevention programs have required a different approach in providing services than those concerned with curative interventions. Such programs are characterized by two principles: (1) provision of the services at a convenient location near the residence of recipients and at a convenient time; and (2) active promotion of the service being offered. When immunization, for example, is brought to the residence at a time of day when villagers are not in the fields or at the market, acceptance by 90% or more is common. Comparable results are obtained if immunization is offered at convenient assembly points which are not too distant provided that the program is well-organized and promoted. Even in populations to which immunization is alien or resisted, remarkably high levels of acceptance have been achieved when educational and promotional methods have been imaginative. It is obvious that different types of preventive programs, such as the provision of oral rehydration packets and family planning materials, require somewhat different patterns of activity than does an immunization program, but the most successful have adhered to the two principles cited. Neither are intrinsic to the provision of curative services.

It is apparent that the beguilingly simple phrase "primary health care system" does not define a simple system but an array of services which must be delivered using quite different approaches and which differ in their relative costs and benefits. Where resources are limited, it would seem logical to give priority to the development of institutional capacity to provide community-based preventive services.

Of the possible preventive interventions, immunization is clearly preferred. It offers the highest benefit-cost ratio and promises even more when other, still experimental antigens become available. An immunization program requires the development of an organizational and management structure which extends from a national center through each level of government, which relates to all existing health units and which involves village-level participation. It requires the establishment of a distribution system for a manageable few biologic agents and supplies and requires that a reporting and assessment system be established to measure progress in program inputs and success in controlling disease. For building institutional capacity, it is perhaps the best of any of the possible preventive interventions. Once established, one could envisage the addition of other primary health care activities which require community-based participation and health promotion.

IMPLEMENTATION OF IMMUNIZATION PROGRAMS

To many who have not had field experience, the phrase "immunization program" conveys the image of a comparatively simple and straightforward set of activities amenable to definition in a "blueprint" type of project. Such programs, however, although less elaborate than those for a broader-based primary health care, must take into account a complex of variables and so will vary, sometimes greatly, from area to area. Some of the factors to be taken into account can be anticipated in the planning stage but many cannot. Effective programs, therefore, are characterized by continuing assessment, flexibility and evolutionary change. As such, they are ideal vehicles for what Korten (1980) describes as "action based capacity building." Illustrating this are five sets of factors which must be considered in such a program.

First are the factors associated with the vaccines employed and their method of administration. Different groups of vaccines will be used in some areas than others. Some programs may employ many antigens but others will use fewer, because of problems of cost or logistics or because a particular disease is not present in the area, e.g., yellow fever. Depending on the vaccine and on epidemiological patterns of the disease, the targetted age groups in the population will differ. To prevent neonatal tetanus requires vaccination of women in their child-bearing years; to prevent measles where transmission is rapid, as in parts of Africa, requires vaccination of children as soon after nine months of age as is practicable. The logistics of administration must be considered for each antigen in deciding, for example, whether to give inactivated polio vaccine by needle and syringe or attenuated live vaccine by mouth. Each of the vaccines has different characteristics of heat stability and these must be taken into account in storage and distribution. Design of the program requires that the substantial economies of cost in packaging vaccines in multi-dose containers be considered and delivery systems utilized which permit vaccination daily of as many persons as possible.

A second group of considerations in design of a program relates to the method utilized for distributing vaccine to recipients. For some areas, e.g., orthodox Muslim areas, it has proved necessary for vaccinators to proceed house-by-house to vaccinate women and small children confined to their residence because of religious practise. In other areas, assembly of recipients at convenient collecting points, e.g., health center, school or other, has proved effective and economical. Consideration must be given to the participation of those at health centers and hospitals. If they are to participate, they require refrigerated storage for vaccines, training and continuing supervision of their personnel and a plan which permits each to vaccinate a sufficient number during a day to utilize vaccines packaged in multiple-dose containers. Some such centers may be able to undertake continuing vaccination of those in nearby areas through regular visits to villages. Since in most health services, those assigned to health centers or hospitals do not now leave

their facility, a major reorientation in their responsibilities and plan of work may be required.

A third set of problems to be considered in design of a program relates to the techniques needed to motivate residents to seek or at least to accept vaccination. The character of promotional-educational programs will depend on sociocultural factors. Different approaches have proved effective in different areas and range from communication through village leaders, community health workers, schools, religious leaders, the media and others in a variety of different mixes. Where and when vaccination is provided is related to vaccine acceptance and must also be considered. If, for example, vaccination is offered only at distant locations, at times of day when many adults are in the field or at market or during certain religious periods, receptivity may be low however effective the educational-promotional program.

A fourth group of considerations relate to the design of assessment mechanisms and their use in management. As experience has shown, continuing and timely monitoring of progress in the program is essential to assure that vaccines are potent at the time of administration, that satisfactory numbers are being immunized and that the program is having the expected effect in reducing morbidity and mortality. Systems need to be devised to provide such data as the numbers vaccinated, the proportion of target populations which have actually been immunized and the numbers of cases and deaths occurring. Different types of data will be required depending on the antigens used. In the past, few reliable data of this sort have been routinely gathered by health programs and, even less frequently, used to identify weaknesses in the program which require modification. Considerable experience is needed in evolving such systems and these may be expected to differ from area to area depending on their sociopolitical structure.

Lastly, perhaps most important, is the organizational structure and management of the program. Leadership is required to provide technical guidance and training and to facilitate incorporation of practical

experience into operation; to assure timely receipt and distribution of vaccines and equipment; to identify and resolve problems; to provide encouragement to field staff; and to develop and sustain mechanisms for measurement of progress. The program organization may take many forms but to realize its full potential in building institutional capacity, it must be an integral part of the health structure and must utilize, to the fullest possible extent, health staff throughout the existing system. To do so requires that each program be appropriate and relevant to the national health structure which it serves and so will vary from country to country.

In brief, the development of an immunization program encompasses anything but a simple, straightforward set of actions which can be neatly prescribed by a development blueprint. Rather, it must address the full range of problems which are germane to the eventual development of a primary health care system embracing the panoply of activities described in the Alma-Ata Declaration. As such, it is an ideal vehicle for building the institutional capacity to do so.

Research in the Program

The development of immunization programs is clearly an experimental process involving questions which are susceptible to being addressed through social science research as well as research designed to produce new or better vaccines and better technologies to facilitate their distribution and application. How this research is conducted and how it relates to ongoing programs will be important.

Social scientists potentially have much to contribute but, as Korten (1980) has pointed out, social scientists have had little influence on the design or performance of typical rural development programs. Their past activities have commonly consisted of: (1) summative evaluations, documenting failure long after the time when corrective action might have been taken; (2) pilot projects, commonly located outside of the operating agency, which provide blueprints for application by others but

for which there is seldom the capacity to make them operational; and (3) baseline surveys, which provide data which are often irrelevant to planning or, if relevant, directed to agencies which don't have the capacity to use them. Most effective and needed are research activities conducted within the context of ongoing programs employing tools which facilitate the rapid collection of data which are directly relevant to action. In Korten's view, disciplined observation, guided interviews and informant panels are preferred over formal surveys; timeliness over rigor; informed interpretation over statistical analysis; and attention to process and intermediate outcomes as a basis for rapid adaptation in preference to detailed assessment of final outcomes. In brief, a reorientation in social science research is required.

No less important is the need for a close relationship between those engaged in program operations and those in research programs intended to develop and improve vaccines and the technologies for their distribution and application. Opportunities, problems and obstacles identified by field staff can play an important role in defining research priorities. Although the value of basic research is acknowledged as essential, the most critical and frequently deficient bridge has been that between program staff and research scientist. A reorientation in this area is thus quite as important as in social science research.

Program Support

Most important to a program which is intended to build institutional capacity is the nature of donor support. Here, too, a change is called for (Israel, 1983 and Korten, 1980). Most development programs have consisted of detailed preplanned projects of definite but short duration. To paraphrase Korten: a demand for detailed preplanning and subsequent adherence to the detailed line item budgets and implementation schedules immediately preempts the learning process by imposing the demand that leadership of the incipient effort act as if it knew what it was doing before there was an opportunity for learning to occur.

Israel, after review of nearly 200 Bank projects, reaffirms the need to reconsider the nature of support provided to programs in the social sector. As he points out, programs "trying to reach and involve large numbers of people are more 'institution intensive' ..." and that "the institutions involved are the most difficult to improve." At the same time, he finds that in the social sector, institutional and managerial problems are the most pervasive and resources, the most scarce. He calls for long-term programs transcending individual projects and, in formulating these, a recognition that detailed preplanning such as has been employed in industrial and telecommunications projects, is not only unrealistic but counterproductive.

CONCLUSION

The Alma-Ata Declaration was important in redefining objectives in health program development. Not fully appreciated were the formidable difficulties inherent in reaching these objectives nor that the principal constraint in most countries lay in the fundamental generic problem of institutional and managerial capacity. A strategy which addresses this problem is critical. Most appropriate and cost-effective would be a program whose initial thrust is immunization, but whose ultimate objective is to embrace the range of preventive interventions envisaged in the Declaration. A flexibly evolving program, rather than a blueprint-type project, would best serve this end, its strength being appreciably greater if social science and other forms of research are integrally related to operations and to program goals.

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