To be effective, extension of primary health services containing a communicable disease component must be soundly coordi-
nated with the communicable disease specialists involved. The
common failure to provide such coordination signals both an
important need and a danger—the danger that deteriorating
communicable disease control could produce sharp disillusio-
ment with concepts of integrated health care.

Introduction

While communicable diseases are no longer the leading causes of morbidity and mortality in Europe and North America,
the general consensus is that their rank has changed very little during this past generation in most of the developing world. The
word "consensus" is used deliberately here, because accurate information about the true levels and adverse health effects of
communicable diseases in developing countries is almost universally lacking. For example, the World Health Statistics An-
nual, 1972 provides mortality data for only one country in the African Region (Mauritius) and four in the Asian Region
(Hong Kong, Israel, Japan, and Thailand).

Since one unofficial indicator of national development is the ability to generate meaningful statistics and biomedical data, it is
inevitable that communicable disease specialists and policy-makers must continue to

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ble Disease Control Planning in Developing Countries.
11-25.

2Former Chief, Department of Communicable Dis-
eseas, Pan American Health Organization, Washington,
D.C. At present Assistant Director for International Re-
search, National Institute of Allergy and Infectious
Diseases, Bethesda, Maryland 20025. A bibliography
on this article is available from the author on request.

base many policy and program decisions more on rough estimates than on hard data. This is disturbing primarily because it is
technically feasible to do a better job of gathering epidemiologic information on communicable diseases in developing coun-
tries. Nevertheless, public health administrators involved with prevention rarely have the required information at hand be-
fore being forced to make decisions.

Of greater concern is a view commonly expressed by technicians—the view that communicable disease prevention and con-
trol has deteriorated in recent years in many areas of the tropics, and that this downward trend will in all likelihood continue.
This opinion is usually expressed privately rather than in print and, as should be obvious from the preceding paragraphs, is
generally impossible to substantiate except in striking cases such as the collapse of the malaria eradication program in Sri
Lanka. The reasons advanced to explain the phenomenon are complex, and no single factor seems wholly responsible. Prom-
inent factors include: (1) the deterioration of disease control programs in the post-colonial period; (2) population growth; (3)
over-population and crowding, particularly in urban areas; (4) inadequate environmental sanitation; (5) shortages of well-trained na-
tionals to supervise communicable disease programs; (6) technical obstacles, such as increased insecticide resistance among mos-
quitoes that transmit malaria and dengue fever; (7) lack of appropriate technology with which to prevent or control important tropical diseases; and (8) preventive programs' loss of the struggle with clinical services for limited health funds.

Overall, the checkered progress of communicable disease control programs in the developing world makes it imperative to review the organization and administration of these programs in a constructive fashion. It should be noted, however, that any analysis as broad in scope as the one attempted here will necessarily be influenced by the personal experiences and opinions of the author.

The European Background

Primitive quarantine methods, which originated in antiquity, were based on empirical observation of the spread of dread diseases from infected visitors to other members of the community. Organized communicable disease control activities did not become possible until the early nineteenth century, following development of accurate mortality figures and disease reporting in England under the inspired leadership of William Farr. Early epidemiologists, such as John Snow, were able to utilize these data to calculate disease attack rates in defined groups, compare attack rates between populations, and postulate the probable mode of disease transmission.

These momentous events occurred in the midst of the Industrial Revolution and migration of rural populations into rapidly-swelling cities and new towns. At this time no administrative or legislative framework existed to deal with sewage and garbage disposal or to ensure safe food and drinking-water. The response in England, other parts of Europe, and the United States, was to appoint medical officers and health boards and to make them responsible for controlling infectious diseases. In the absence of effective pesticides, medications, and vaccines (except for smallpox vaccine), the efforts of these authorities necessarily focused on environmental measures, surveillance of notifiable diseases, and quarantine.

Today, despite technical advances in vaccines, antibiotics, and vector control, developing countries are confronted with the same problems that faced their European counterparts 150 years ago. However, improved communications, simplified surveillance systems, computer-based data processing, more rapid laboratory diagnostic procedures, preventive measures that can supplement improved environmental sanitation, and applied research on diseases for which effective public health measures are still lacking all provide a basis for optimism. From this point of view, therefore, there are grounds for believing that many developing countries have the potential ability to reduce the toll of communicable diseases and to make substantial progress toward the objective adopted by the World Health Assembly of "health for all by the year 2000."
ating incredible logistics problems; (2) the cost would have been prohibitive; and (3) medical advances created other approaches that had a more immediate impact on illness and death at what appeared to be a lower cost.

In general, the approach to communicable disease control planning was simple and direct. If a canal or railroad project could not be completed because malaria, yellow fever, and cholera were causing workmen to fall ill or avoid recruitment, these became the priority diseases. Commissions to study the problem locally and develop prevention and control strategies were the order of the day. These commissions naturally attracted administrators and scientists who arrived with, or soon developed, strong interest in individual diseases. The final result was development of a small number of disease prevention and control programs, each directed at a single disease. Each program would have separate administration, budget, field staff, transport, communications, and surveillance systems. Operational norms and guidelines would be developed at the program level. In some programs, most notably the malaria campaigns, field operations had a paramilitary flavor characterized by uniforms, rank, and strict discipline. It was usual to assign these “vertical” one-category disease control programs to the ministry or agency responsible for health, but free-standing commissions or institutes were also common. Furthermore, even if the malaria, yellow fever (*Aedes aegypti*), tuberculosis, smallpox, and leprosy programs were all in the same agency, there was seldom coordination of services, nor was such coordination considered desirable.

The end of the colonial period coincided with the explosive growth of medical technology that came during and after World War II. Pertinent events included the development of DDT, the discovery and mass-production of penicillin and antimalaria drugs, and the improved availability and quality of yellow fever and smallpox vac\-cines. Within a space of several years the prevailing concept of disease control was replaced by a new concept directed at eradication of malaria, *Aedes aegypti* (the urban vector of yellow fever),3 yaws, and smallpox. The attraction of this eradication concept for specialists, administrators, economists, politicians, and funding agencies was obvious. An intensive, adequately funded, and sustained effort against the targeted disease would rid the population of a traditional scourge forever. For the eradication effort to be effective, however, neighboring countries or preferably whole continents should embark upon it in a coordinated manner. Allocating a disproportionate amount of the health budget to attack and consolidation phases could be justified by the lower costs of the maintenance phase (once eradication had been achieved in a given area) and by the ultimate savings resulting from not having to fund a disease control effort after total eradication had been achieved. In theory, the funds made available following eradication of one disease would be plowed back into an attack on the next disease scheduled for eradication or into allocations for general health services. Similarly, retraining of the eradication staff and adaptation of the eradication infrastructure would permit them to be used in subsequent eradication efforts or other control programs.

Eradication efforts carried out in accord with these ideas met with varying degrees of success. The most striking achievement to date has been the recent global eradication of human-to-human smallpox transmission. In addition, yaws has now been eliminated from most developing countries and has been confined, where it still persists, to remote areas with dispersed populations. Urban yellow fever no longer occurs; and although the threat of its recurrence re-

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3The jungle mosquito vectors of yellow fever would not be affected by applying insecticides in or around human habitations.
mains, eradication of the urban yellow fever vector, *Aedes aegypti*, from many parts of South America has freed the major portion of that region of both urban yellow fever and dengue. Also, Europe, the Middle East, the Caribbean, the temperate areas of South America, and many of the Western Pacific islands have virtually eliminated endemic malaria transmission.

Nevertheless, despite initial enthusiasm for the eradication concept and the considerable progress achieved, that concept has gradually lost credibility. The major technical reasons might be summarized as follows: (1) lack of appreciation for the complex epidemiology of diseases; (2) misplaced faith in the "herd immunity" concept; (3) overestimation of the impact a single control measure could have on disease levels; (4) inability to carry the eradication effort to the final patient or vector; (5) failure to anticipate the massive effort required to maintain areas free of a disease prior to final eradication; (6) difficulty in sustaining the eradication effort once the targeted disease had disappeared from the population and administrators had come to perceive the eradication program as being less cost-effective; and (7) the emergence of technical problems such as insecticide and drug resistance.

I have emphasized the technical problems of eradication because considerable publicity has been given to both the political problems and the interruption of funding that plagued some unsuccessful programs. The point I wish to make is that even if these latter difficulties had been minimized, except in the case of smallpox the total worldwide eradication sought would still not have been attained. Now that smallpox has been eradicated, further proof of the eradication concept's disrepute is that no other WHO-supported communicable disease control program has made eradication its direct objective. With regard to yaws, for example, it was recently proposed that although eradication should be considered, initial anti-yaws efforts should be addressed to the Americas. New WHO programs, such as the Expanded Program on Immunization and the Prevention of Blindness, are clearly directed at control.

Current Health Policies in Developing Countries

Disenchantment with single-disease control programs and eradication efforts have coincided with rising health expectations in developing countries. These expectations are reflected in the Constitution of the World Health Organization, which includes the oft-quoted definition of health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." Subsequent operational definitions of this ideal have continued to support a holistic approach to health.

The standards for health care policies in developing countries may be found in the resolutions adopted each year by the World Health Assembly. Basic health services are to be provided to the greatest number of people as soon as possible. Maximal use should be made of the health care infrastructure in providing these basic services. The infrastructure should also be extended as rapidly as possible to areas that presently receive no organized medical services. In general, developing countries implicitly accept the idea that rapid extension of coverage may not be possible without sacrifices in the quality of care, and also recognize that they will not be able to afford the luxury of separate programs for each of the important communicable diseases.

It should be noted, however, that these far-reaching health policies were formulated at a time when the international lending and technical assistance agencies were operating on the assumption that improved health could best be achieved through general socioeconomic development, rather than through health programs *per se.*
large segment of the international community was also convinced that the population explosion was the greatest problem facing the developing world, and that top priority should go to reducing birth rates rather than death and disease. Indeed, communicable disease control programs were held at least partially culpable for the predicament of the developing countries because they saved lives without concern for the demographic results.

Since then an accommodation of sorts has been reached between these different health, economic, and population policy approaches. It is now appreciated that total reliance on economic development will not produce clear “spin-off” health benefits for several generations, and so will not meet the demands of an increasingly articulate Third World population for health services. In a similar vein, although the need for population control is accepted, experience has shown that children function as a form of insurance in developing countries, and that parents will not voluntarily reduce the size of their families without some assurance that their first children will survive to adulthood. Family planning, therefore, is increasingly promoted within the context of maternal and child health and primary health care services.

It is also expected that communicable disease control programs will be incorporated into primary health care programs insofar as this is possible. The current dilemma facing communicable disease program managers and specialists is that this policy has been formulated and adopted at the theoretical level. In actual fact there are very few examples anywhere of effective communicable disease control being accomplished by an integrated program. The examples that do come to mind (in China and Cuba) are of programs that relied very heavily on a vertical approach in the early phases. Also, in the case of Cuba it can be argued that the island’s ecological and political circumstances created favorable conditions not found elsewhere in Latin America.

At the present time a number of developing countries are planning or have already begun to implement primary health care programs. In each country, pilot projects or projects in demonstration areas are usually being established before large-scale implementation begins. So far, the primary health care projects that I have seen in Latin America and the Caribbean have been heavily oriented toward clinical diagnosis and patient treatment. The clinical facility is static rather than mobile and is staffed by lower-echelon health workers. Despite attempts at community motivation and participation, underutilization is a problem in some areas. Supervision, a particularly pressing problem, is complicated by evaluation systems that tend to tabulate the services provided (e.g., the number of clinic visits or vaccine doses administered) rather than the effect on community health (e.g., the immunization coverage achieved or the decline in notification of disease). In addition, to do an adequate job most supporting services necessary for communicable disease control—such as epidemiologic surveillance, diagnostic laboratory, and vector control services—would need to be substantially improved.

Though the primary health care schemes are formally assigned a communicable disease and epidemiology component, to date the actual involvement of epidemiologists and communicable disease specialists in development of those components has been limited. Furthermore, little attention has been given to identifying the communicable disease control tasks to be carried out at the local level. The complexity of these tasks and the level of the system assigned responsibility for them will together determine the requirements for staffing, training, supplies, logistical support, supervision, and evaluation. Without this input, any primary health care program will find it hard
to deal effectively with the communicable diseases of public health importance.

**Current Organization and Administration of Communicable Disease Control Programs**

Perhaps the first point to emphasize here is that very few ministries of health administer a single organized program of this kind. The more common pattern is for strong single-disease programs—such as ones dealing with malaria or tuberculosis—to function as separate units. Epidemiology is still considered synonymous with communicable diseases throughout most of the developing world, and it is in the epidemiology units that one finds national responsibility for the miscellaneous communicable diseases. Aside from possibly overseeing immunization activities, however, the national epidemiology unit usually has no direct program management responsibility. The major functions of the epidemiology unit are to formulate national guidelines for prevention and control of communicable diseases, develop training materials, evaluate surveillance data, and prepare surveillance reports. As mentioned earlier, the national epidemiology unit may have little contact with categorical single-disease programs.

It should also be pointed out that there are a limited number of countries where the traditional communicable diseases have ceased to be a major public health problem. In the Americas, examples would include countries as diverse as Chile, Costa Rica, and Cuba. These countries share such common features as relatively advanced economic development, policy-makers who give high priority to health as a social issue, educated and well-informed communities, above-average transportation and communication, and easy access to an extensive network of health services. Under these circumstances, the epidemiology unit described above may be adequate.

On the other hand, even in these countries the control of communicable diseases in general is fragile and far from complete. Available data suggest that most disease indicators—including levels of gastroenteritis, hepatitis, acute respiratory illness, and tuberculosis—are still above levels considered reasonably acceptable in the developed world. Furthermore, communicable disease control programs that are taken for granted in Europe or North America—such as programs to control venereal disease or hospital infections—are usually limited to major population centers. The capacity to respond to epidemics or new problems may be limited. In addition, these more advanced countries still rely very heavily on international reference laboratories to confirm or supplement the findings of the national laboratory; and weak peripheral laboratory services contribute significantly to shortages of surveillance information and result in symptom complex reporting rather than disease notification.

The majority of developing nations is in an even less fortunate situation. In general, the budget for the traditional vertical disease control program is stationary or is being eroded as national funds and international support are channeled into primary health care. Hence the vertical disease control effort is losing momentum, and in many instances the levels of the diseases involved appear to be rising. To a certain extent this can be blamed on failed efforts at eradication—resulting in the return of diseases such as malaria or dengue to areas where the vector had been eliminated. Some of the increase could also be due to increased clinic visits, improved reporting, and community awareness resulting from implementation of extended health coverage. In addition, the impact of certain diseases—such as paralytic poliomyelitis—may be increased by improved sanitation that raises the average age at which children are infected.

While all these considerations may be factors, indications are that communicable dis-
Communicable Disease Programs have reached a crossroads. Further reductions beyond the current minimal level of support can be expected for traditional activities. In addition, there is an increasing tendency to take program responsibility away from epidemiology units or individual program managers and to make these units into one of several service elements in maternal and child health or primary health care programs. For example, UNICEF no longer supports malaria programs in the Americas and will consider support for immunization programs in the Region only if they are presented within the context of maternal and child health or primary health care programs. Hence separate communicable disease control agencies are now running the risk of becoming irrelevant to operation of their own technical programs. The result has been increased difficulty in maintaining current achievements, failure to react to epidemic situations, insufficient funding to incorporate currently existing technology into the programs, inadequate supervision, and reduced morale. In addition, the application of new technology to control programs (e.g., to the fields of gastroenteritis and acute respiratory infection) has been frustrated.

Interestingly, the aforementioned lack of involvement of communicable disease control staffs in planning and implementing primary health care projects has not been confined to national personnel. Epidemiologists in multilateral agencies (PAHO/WHO) and bilateral agencies (USAID) have also remained at the periphery. This undesirable situation is sometimes attributed by health planners to inflexible attitudes on the part of disease specialists who wish to preserve the status quo. The health planners, in turn, are sometimes accused of lacking appreciation of the complexities involved in organizing an effective communicable disease control effort and to be unable to carry out the operational research required to incorporate control activities within the primary health care structure.

The situation might best be summarized by saying that the health planners have not asked the advice of the communicable disease specialists, and the latter have been slow to volunteer.

Future Organization and Administration of Communicable Disease Control Programs

Looking to the future, the first question to be answered is whether communicable disease eradication efforts can be justified. It is true that the attitude of the medical humanist—that no level of disease should be tolerated—is sometimes taken to imply the ideal eradication or "stamping out" of disease. As has already been pointed out, however, smallpox may be the only disease whose epidemiology makes it a prime candidate for global eradication. On the other hand, global eradication should be carefully distinguished from elimination of a disease in some Region, country, or isolated geographic area (such as an island). Furthermore, eradication itself is a relative term. Human transmission of smallpox has ceased, but WHO has no immediate plans to destroy all smallpox virus, samples of which will be stored in as many as four collaborating centers indefinitely for research and reference purposes. Administrators have also expressed the view that setting an eventual goal of eradication can have important program benefits. In effect, by aiming at 100 per cent eradication, 90 per cent may be achieved. Were the target set at the actual 90 per cent goal, only 80 per cent might be attained.

On balance, I believe that eradication does have a place in future strategies—so long as the term is carefully defined and not used promiscuously. The smallpox program, after all, has proven that under proper epidemiologic circumstances scientists employing appropriate technology can deliberately exterminate a disease agent. Further technical developments and improved
mathematical modeling will eventually force epidemiologists to reevaluate the prospects for global eradication of other diseases. It is also feasible to consider eradicating diseases from certain geographic areas. Disease problems on islands, such as the recurrence of *Plasmodium malariae* transmission on Grenada, may lend themselves to a strategy of eradication. More ambitious regional eradication schemes may also prove worthwhile, as demonstrated by Brazil's continued success in eliminating foci of imported *Aedes aegypti* from its vast territory. The extraordinary vulnerability of yaws to penicillin and the low transmissibility of the infection may make Hemispheric yaws eradication feasible. In the case of *Aedes aegypti* eradication, it is frequently stated that lack of both adequate funds and commitment by all countries of the Americas, rather than technical factors, are what stand in the way of a serious eradication program. The appearance of wide-spread dengue hemorrhagic shock syndrome in the Americas or the reintroduction of dengue fever into the United States could produce policy changes that would greatly enhance the prospects for effective eradication.

There are also special circumstances where national health authorities should consider continuing traditional vertical programs. For example, vertical programs should be retained in rural or isolated areas where they may be the only health service available to the population. Vertical programs are also more adaptable to diseases against which it would be difficult to apply appropriate control measures through the primary health care system. In this vein, vertical program activities that are prime candidates for retention would include those directed at environmental sanitation and vector control. Also, a vertical program is easier to justify when disease levels are high and when an intensive, well-supervised effort is required for a definite period. Once disease levels are reduced, a program of this kind should attempt to broaden its base so as to include other diseases with a similar epidemiology.

The merging of related communicable disease control programs is now being undertaken or considered in a number of countries, usually without much fanfare. In the past, of course, the mobile strategies of traditional programs frequently made use of a "polyvalent" team that would attack two or more diseases on a single visit. The tasks performed, however, were those of the individual programs involved. The present focus is on more serious attempts at integration. Brazil, for example, is experimenting with integration of its malaria program into immunization work, *Aedes aegypti* eradication, and efforts directed against leprosy, plague, and Chagas' disease in specific parts of the country.

Acceptance of the fact that multiple vaccine antigens can be administered simultaneously without significantly reducing protection has permitted national immunization programs to quietly begin immunizing children in a more effective fashion using simplified vaccination schedules. Among other things, the strategy of periodic mass immunization campaigns is being abandoned in favor of one aimed at completing the primary series of vaccinations in the first year of life. In other instances, program combination is being achieved by changing the emphasis from one particular disease to some function (such as immunization or vector control) or by combining programs dealing with diseases that have similar epidemiologic patterns or clinical presentations.

Combining closely related programs, however, does not ensure that integration or even effective coordination will be achieved. Rarely, for instance, can one disease program incorporate a second disease program without significant changes in field operations. Intelligent decisions can be made only when the epidemiology of both diseases is well-known and the limitations of control measures are appreciated. Further-
more, in the past the impact that control measures directed at one disease might have on other diseases was generally appreciated only after the fact. (A classical example was the unanticipated disappearance of new leishmaniasis cases in many areas following effective malaria house-spraying with residual insecticides—because of the close proximity of the local sandfly vector to human habitations.)

Even if true integration is actually attempted, it may be difficult to achieve for several reasons. Epidemiologically, only a limited number of diseases will meet the necessary criteria. The logistics of integrated field operations for two diseases may prove exponentially rather than doubly difficult. It will also be extremely hard to retrain field staffs geared to deal with a specific disease unless the tasks to be carried out in the integrated program are well-defined, and unless prestige and salary disparities between the two staffs are reduced to a minimum. In addition, it will be necessary to integrate reporting, epidemiologic surveillance, and laboratory services before the reorganized program is implemented. And since program integration is often sought as a way to reduce expenses, budget projections may tend to underestimate true operating costs.

Another problem is that when integration of separate programs is not undertaken on a rational basis, undesirable side-effects analogous to business takeovers may occur. This is of particular concern when one of the programs is stronger than the other and the epidemiology of the targeted diseases is so dissimilar that common diagnosis and control measures will prove difficult. In such situations the chief administrator of the dominant program generally remains in charge, and the technical guidelines and field procedures developed are tailored to fit the major disease. Because budgetary resources will be limited and the director’s interest will tend to remain focused on his special interests, control work aimed at the second disease that cannot be effectively merged may be reduced. Under some circumstances the smaller program may even cease to exist as a functional unit.

This implies that mere combination (limited essentially to administrative reorganization) of communicable disease control programs may be justified on nontechnical grounds whenever the sharing of communication, transport, and other common services will improve efficiency. Integration of such programs' technical elements, however, should not be undertaken without careful planning—including epidemiologic studies of the diseases and demonstration areas involved—to prove the feasibility of the integration concept and to “shake out” unexpected difficulties.

**Approaches to Integration**

Given these obstacles, which communicable disease control programs should be considered by international agencies and developing countries for integration? One approach would be to group together programs directed against diseases with similar clinical presentations. Typical examples of such diseases would be those caused by enteric pathogens (including intestinal parasites); tropical skin diseases (leprosy, yaws, superficial fungal infections, leishmaniasis, onchocerciasis, and possibly venereal diseases in rural areas); and diseases involving infectious ophthalmic conditions (trachoma and onchocerciasis). A second approach would be to integrate programs employing similar diagnostic procedures and laboratory examinations. Examples include tropical skin disease programs making use of skin scrapings or snips, enteric disease programs performing stool examinations, leprosy and tuberculosis programs utilizing acid-fast smears, or various specific disease programs now able to use fingerprick blood specimens (previously used only to make malaria peripheral blood smears) for serologic testing employing simplified laboratory tech-
niques. A third approach would be to integrate programs employing similar control measures—such as immunization, the prophylactic or chemosuppressive drug therapies used against malaria and yaws, or the vector control measures directed against malaria, leishmaniasis, and filariasis. Another possible grouping would include the zoonoses for which the ministries of health and agriculture often share responsibility—including rabies, hydatid disease, and brucellosis. Because of the aforementioned problems, it would be better to consider intimate coordination and resource sharing between the ministries rather than complete integration of the programs involved.

Communicable Disease Control and Primary Health Care

Another question is as follows: If the integration of programs directed at single communicable diseases is so difficult, is not the avowed and oft-stated policy of integrating communicable disease control into the primary health care infrastructure overly ambitious? Within this context, it is important to distinguish between adopting a policy of integration and effectively implementing that policy. A number of Latin American and Caribbean countries have adopted the policy of integration with no discernible effect upon the day-by-day operation of either communicable disease control activities or clinical services. Several countries have made administrative changes as a prelude to integration. Colombia, for example, has recently assigned responsibility for national immunization, tuberculosis, leprosy, and sexually transmitted disease programs to the Division of Medical Care. However, it will take several years to determine whether such changes at the central level can be translated into provision of integrated services that will have an impact on disease levels at the periphery.

Overall, the dilemma confronting the developing countries is clear. On the one hand, they cannot economically and administratively afford the luxury of increasing the number of vertical programs with separate budgets, staffs, facilities, and laboratories. On the other, demonstrated success in designing and implementing integrated programs is limited to special situations and circumstances. Communicable disease epidemiologists do not have sufficient practical experience to advise governments about incorporating communicable disease control elements into primary health care.

Nevertheless, the majority of communicable disease specialists are now willing to accept the premise that integration of communicable disease activities into primary health care services is a worthwhile objective. It is my belief that considerable effective integration can be achieved if the task is approached in a responsible, scientific fashion. An important first step will be for each country's communicable disease epidemiologists and health planners to agree which diseases must be dealt with by the primary health services. While the conference can assume that gastroenteritis, acute respiratory infections, and childhood diseases preventable by immunization should be included, the selection process should not be limited to sessions at the conference table. Statistical data on individual diseases will be insufficient to provide a basis for sound decisions, and it will be necessary to secure additional information through incidence or prevalence studies.

A logical second step will be to determine the extent to which the primary health care services are prepared to adopt a strategy of disease prevention rather than disease treatment. This point is of critical importance for two reasons. The first reason is that treating the already ill will have very little effect on the actual prevalence of communicable diseases in the community, or upon the levels of morbidity and mortality they cause. The second reason is that primary health service systems in developing countries that are assigning top priority to open-
ended public demands for curative services will find it difficult to provide support for essential preventive services.

Following this determination about the balance between preventive and curative services, field studies will be necessary. The health planners will know the primary health service scheme they have developed, and the communicable disease control specialists will have their technical knowledge of major disease epidemiology and possible control measures. Theoretical discussion, however, will prove no substitute for experience gained in dealing with the actual health care providers, health educators, locally available resources, and community of citizens involved.

Since previous experience has shown that fixed facilities rarely attract sufficient numbers of patients to effect control and are not readily adaptable to environmental or vector control activities, great emphasis should be placed on developing effective techniques for community mobilization and outreach activities. An effective system for referring patients to more sophisticated facilities should also be devised. In addition, the demonstration project will have to come to grips with the paradox of the primary health care worker. Briefly put, the paradox is that in seeking to extend basic health service coverage, the program asks the least educated, lowest-paid member of the health team to carry out a multiplicity of tasks that many fully-qualified physicians would not attempt.

Another extremely critical matter concerning integration of communicable disease activities into primary health care is identification of those tasks appropriate for the multipurpose, clinic-based primary health care worker on the one hand and those essential tasks that must be assigned to more mobile health auxiliaries on the other. In addition, the extent to which the clinic worker can participate in these latter outreach activities must be determined. Adequate supervision for both fixed and mobile activities will be required; appropriate training material for both the primary workers and their supervisors will be needed; and, for effective communicable disease control, it will be necessary to have a single surveillance system that is for the most part symptom-based. If feasible, the primary health care workers themselves—and certainly their immediate supervisors—should be responsible for tabulation and initial evaluation of the surveillance data obtained. Incorporation of simplified laboratory techniques at the primary level, together with access to supporting diagnostic facilities, should also be carefully considered. It is likely, however, that clinically-oriented primary health care workers will be unwilling or unable to perform these laboratory techniques, so that laboratory auxiliaries may be required.

One of the hallmarks of vertical communicable disease control programs has been their emphasis on strong supervision, a built-in evaluation system, and the need to have as many of the evaluation parameters as possible reflect the status of the disease in the community. Few primary health care schemes that are operating or being considered place sufficient emphasis on these matters. Thus it appears that by helping to strengthen these areas of activity, communicable disease specialists could make a major contribution to the primary health care movement. It may be possible, for example, to use data on the incidence of selected communicable diseases or rates of immunization coverage as essential evaluation tools in the general program of primary care.

Accumulation of the necessary practical experience provided by demonstration projects may take several years; but once acquired, such experience will facilitate realistic calculation of the logistical support, manpower, and costs that larger programs will entail. Areas where further operational studies or applied research is needed will also become apparent. Partly because a large number of primary health care pilot
projects are already in operation or in the planning phase, implementation of this primary care approach will clearly depend more upon human factors—such as a spirit of cooperation—than upon any need for additional funds. There is no doubt that the further these primary health service programs progress without adequate technical input from communicable disease specialists, the more difficult it will become to effect needed modifications at a later date. Finally, given the prevalence of communicable diseases in patients seeking health services in developing countries, the continuing absence of an effective communicable disease control element could eventually produce disillusionment with integrated health care concepts on a scale eclipsing our present discontent with eradication.

Conclusions

Integration of communicable disease services into the primary health care infrastructure is not merely desirable; it may be essential for the developing world. Given our current knowledge and technology, new eradication efforts are not feasible, nor are poor countries able to afford a proliferation of autonomous vertical programs. Nevertheless, up to now the role of communicable disease epidemiologists in development of primary health care schemes has been disappointing. As a result, for the communicable disease element in these schemes to become adequate, greatly increased participation by communicable disease specialists will be required.

Complete integration of communicable disease and primary health service programs at the national level will probably not be realistic because of the need for specialists at that level. Likewise, it is to be expected that complete integration at the regional and local levels will be hampered by lack of information, insufficient experience with communicable disease control strategies in the field, and the orientation of primary health care projects toward curative rather than preventive medicine. However, primary health care pilot projects and programs serving demonstration areas are currently being funded and implemented in many developing countries. Within the context of these programs, highest priority should be assigned to developing appropriate communicable disease field technology—as an essential step preparatory to extending integrated health care systems to larger areas.

SUMMARY

The view that communicable disease prevention and control in the developing world has deteriorated in recent years is commonplace among technicians. This opinion, often expressed privately, is impossible to substantiate, except in striking cases, for lack of adequate statistical data. Nevertheless, it provides grounds for serious concern, especially because the support for communicable disease programs seems to be static or eroding.

It is true that the present situation—characterized by disenchantment with both eradication efforts and “vertical” control programs directed at single diseases, as well as by rising health expectations—has confronted the developing countries with a dilemma. But it is equally true that the commonly chosen response—combining vertical communicable disease programs or seeking to integrate them into primary health care services—needs to be based on substantial coordination with the communicable disease specialists involved. For there is no doubt that the further such ostensibly integrated primary health care programs progress without adequate technical input from communicable disease specialists, the more difficult it will become to effect needed modifications later on. And, given the predominant role of communicable diseases in the tropics, it seems likely that the continuing absence of an effective communicable disease control element could eventually produce disillusionment with integrated health care concepts on a scale eclipsing our present discontent with the concept of eradication.