MASS CAMPAIGNS
AND
GENERAL HEALTH SERVICES

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Among the many important problems facing the developing nations of the world, in particular those emerging into independence, by no means the least is that of the health of their populations. In the vast majority, if not in all, the health services are inadequate, disease is an ever-present threat to the efficiency of the population, and many and often conflicting demands place a great strain on limited resources. There are two possible approaches to the problem of health in such countries; one is to build up a framework of health services able in due course to cope with the prevalent diseases; the other is to attack the principal diseases by mass campaigns. These two approaches are not mutually exclusive, since clearly a country could not hope to combat disease without some health services and since any concerted effort must be against the principal diseases or diseases. But the character of the health services of the country will depend to a great and possibly vital extent on the emphasis given to one or the other approach, and each approach has important implications, financial and other, that deserve the closest study by the governments concerned.

The World Health Organization, which from its inception has helped developing countries both to strengthen their health services and to organize mass campaigns against specific diseases, is fully aware of this dilemma, and in 1964 it convened a Study Group on the Integration of Mass Campaigns against Specific Diseases into General Health Services to study the problems involved. The WHO consultant at this meeting was Dr C. L. Gonzalez, and he prepared a background paper to facilitate the discussions. This paper has now been fully revised for the *Public Health Papers* series, in which it is being published in the hope that it will clarify the problems health administrations must necessarily face in the developing countries.
INTRODUCTION

PURPOSE, SCOPE AND LIMITATIONS OF THE STUDY

In seeking to fulfil their responsibility for the health of their peoples, many countries are faced by an apparently insoluble dilemma. On the one hand, they are aware that the provision of adequate health and social measures can best be achieved through the creation of permanent, organized services able to give indispensable care in a well-balanced manner suited to the long-range needs of the population, to expand gradually as local resources permit, and to adapt themselves to the changing health and social needs of the community. On the other hand, they realize that such a process of necessity takes a large number of years, and that it is essential in the meantime to take effective steps against the excessive prevalence of certain endemo-epidemic diseases which constitute a real burden on the population and hamper its economic and social progress.

Two circumstances have accentuated this dilemma. First, the scientific advances made during the last decades have opened the way for a drastic reduction—brought about far more rapidly than was hitherto possible—in the prevalence of some mass diseases. Secondly, living in a world characterized by a sense of urgency or “rising expectations”, the people of developing countries quite naturally expect that their pressing health problems shall be solved in the most expeditious manner.

To express the problem in simpler form: there are two apparently conflicting approaches to which countries should give careful consideration in their efforts to provide health care for the population. The first, generally known as the “horizontal approach”, seeks to tackle the over-all health problems on a wide front and on a long-term basis through the creation of a system of permanent institutions commonly known as “general health services”. The second, or “vertical approach”, calls for the solution of a given health problem through the application of specific measures by means of single-purpose machinery. For the latter type of programme the term “mass campaign” has become widely accepted.
The problem is naturally of paramount importance to the World Health Organization, particularly as there is a growing awareness that the concept of health is an essential ingredient in any programme of socio-economic development. It may be anticipated that countries —especially those determined to accelerate the betterment of health conditions—will request WHO’s collaboration in the drawing up of realistic plans designed to achieve such an objective. Consequently, the Organization should make sure that it is in the best possible position to discharge its constitutional duty “to provide information, counsel and assistance” to Member Governments in this important respect.

For the foregoing reasons, the present study attempts to determine: (a) the main factors preventing a closer relationship between the two types of approach; (b) the possibilities of combining them in some form of concerted action aimed at a given goal; (c) the steps that might be taken towards the best possible co-ordination, with the object of achieving the most effective national health programme and obtaining maximum benefits from resources that are invariably limited.

It must be recognized that a study of this nature cannot draw definite conclusions to serve as a uniform pattern of universal applicability. As has often been stated, it is not possible to lay down a set of rigid rules of health administration to be enforced indiscriminately, even within a single country; still less is this possible internationally. The aim therefore should be to indicate certain trends and submit suggestions; even these should be subject to the closest scrutiny in the light of the conditions peculiar to each country. Among such factors are the following: the local characteristics of a given health problem and the type of health organization; variations from country to country, and even within the same country, in general administration, economic conditions, social and cultural habits of the population, and opportunities for general development. Where WHO is concerned, other considerations must also be taken into account—for example, the directives of its governing bodies and the express requests or special needs of each of its Member Governments.

Continual radical changes in world conditions, and the dramatic pace at which they are brought about, inevitably impose limitations on the findings of a study of this kind. Thus, suggestions which today would be logical and sound might prove otherwise in the not too distant future, for it can hardly be doubted that with the advance of knowledge there will be a corresponding advance in technical tools, with consequent changes in the aspect of a given health problem. Furthermore, experience has already shown that solutions proposed for the treatment of a disease may not be universally adequate, either because of unexpected variations in epidemiological behaviour or because of the particular
living habits of the population. It is also well known that, as a specific health problem recedes, fresh problems or problems that were previously latent emerge.

Given these limitations, the present study is confined to some of the aspects that have come to light in the operation of mass campaigns, viewed in relation to the work of the general health services. In addition, an attempt is made to point out the difficulties that are encountered in the field when it is desired to apply guide-lines—even where these are theoretically correct and accepted generally. It cannot be stressed too often that the practicability of basic principles should always be tested against a wide range of technical, administrative and even political criteria.

By way of illustrating certain points, use is made of examples selected from the information that is available on actual situations found in the planning and implementation of mass campaigns in some countries.

DEFINITION OF TERMS

The vertical or mass campaign approach has been the basis on which specific activities for the solution of individual health problems have been undertaken and it will doubtless be used in connexion with other problems in the future, where the conditions are propitious. Viewed in this context, the subject of the relationship between the horizontal and the vertical approaches is so broad that it would be almost impossible to deal with it in a preliminary paper such as the present one. On practical grounds it has therefore been deemed necessary to confine the inquiry to the communicable diseases which have been, or are likely to be, amenable to the mass campaign approach.

There are two further reasons in favour of this restriction. Mass campaigns against communicable diseases are of particular concern to most developing countries, in which there is at the same time an undeniable need for sound, long-range health planning based on a realistic appraisal of health priorities—a subject in connexion with which WHO is committed to rendering all possible help. Moreover, mass campaigns (in the sense of using specific measures for primary prevention of disease on a community-wide basis) are still not generally suitable for the non-communicable diseases.

It follows that for the purposes of the present study a mass campaign will be taken to be a health programme that concentrates its efforts on the application, on a community-wide basis, of measures specifically designed for the control (in a broad sense, including eradication where feasible) of a particular communicable disease. Owing to the prevailing
epidemiological characteristics of such a disease in the area and/or the low level of development of the general health services, the programme must be directed, supervised and executed, either wholly or to a great extent, by a specialized service utilizing health workers assigned exclusively to the task. Thus, the programme tends to be a vertical operation with a single, "categorical", immediate objective.

While the term "mass campaign" is used in the present paper since it is so widely known, it may perhaps not be the best term to describe the health programmes under consideration, for in fact not only these programmes but all programmes, whether directed to promoting health, preventing disease, or alleviating the effects of sickness in individuals, always have the ultimate objective of yielding favourable results for the community as a whole, for the mass of the people. Furthermore, the word "campaign", in its literal meaning, conveys the idea of a short-term, "crash-type" operation with a rather well-defined date of termination; and clearly that idea does not at present seem to fit such programmes as those against tuberculosis and leprosy. Furthermore, it would certainly not be applied today to programmes for combating cancer or cardiovascular diseases. Some alternative term would probably be better suited to the restricted purpose of this paper—for example, "special disease control (or eradication) programmes" or "special programmes for communicable diseases".

The term "general health services" must also be defined. It will here be taken to mean an organized system of institutions existing, or to be established, in a given area and responsible for carrying out a health programme of a multi-purpose nature, using to a large extent multi-purpose health workers and seeking, as its ultimate objective, to meet the over-all health needs of the population. The range of the programme will necessarily vary according to the conditions, requirements and potentialities of the area. As a matter of principle, the work must be directed to previously established health priorities, be adjusted to the technical and economic resources available, and follow the changing pattern of the health needs and demands of the community. In sum, the programme is horizontal in its approach and has an ultimate, "non-categorical" objective.

Some organizational aspects of the general health services will be considered later. It should, however, be mentioned at this point that two of the structural levels commonly found are of outstanding importance in relation to the purpose of this paper. These levels are: the "front-line" institutions responsible for the direct provision of medical care to the people (peripheral level), and the immediate supervision of such institutions (intermediate level). It is at those levels that most of the difficulties connected with the matter under review arise.
BRIEF HISTORICAL REVIEW

In the development of public health activities three features are worthy of note. First, countries that have reached an advanced stage in the organization of a system of general health services have had to undergo for many decades a complex process of experimentation and adaptation. Furthermore, the process is not yet completed, for the countries in question are constantly searching for more economical and efficient ways of providing health care for their peoples.

Secondly, the application of certain principles of public administration to the field of health is a long and intricate matter. Thus, while the ideas expressed in such phrases as "regionalization of services", "decentralization of activities", "redistribution of functions", "integration of programmes", "co-ordination at all levels" meet with general acceptance, experience has shown that many difficulties arise when it is planned to give effect to these ideas in a number of areas on a wide scale.

Thirdly, a feature of particular interest to this study is the chronological development of multi-purpose as compared with single-purpose health programmes. Although no absolutely uniform pattern can be deduced, it appears that in most countries the establishment of multi-purpose programmes has resulted from the expansion and progressive amalgamation of specialized services initiated some years earlier.

In some countries the process leading to the establishment of a system of polyvalent health services appears to have been completed or almost so, with the result that virtually all direct care is provided to the population satisfactorily by such services. This is true of Chile, where the principle of "centralization of norms and decentralization of activities" is followed, the country having been divided into "health zones", which in turn supervise a number of "health centres" responsible for furnishing all health care within a given area, under the guidance—where necessary—of specialists at the zone or central levels. In Czechoslovakia the basic unit providing over-all health care is the "community health centre", guided and supported by the "district health service", the latter service being in turn attached to a "regional health service" which offers supplementary facilities and supervises all its activities. At the national level the Health Ministry formulates a unified health policy and exercises general direction over its implementation. On the other hand, there are examples of health programmes being operated exclusively, yet very efficiently, by means of a vertical approach. The malaria eradication programme in Venezuela, for instance, has been developed under a highly specialized scheme—with its own intermediate and peripheral organs for carrying out the work—that has little con-
nexion with the corresponding levels of the general health services. Even at the present advanced stage of the programme this pattern is maintained.

It would therefore be unwise to base a comparison of the two lines of approach solely on certain theoretical considerations that might be advanced in favour of the one or the other line. Many other circumstances not related to the technical or operational aspects may be of equal or even greater importance for countries in their choice of approach. Among such circumstances, the imponderable forces of human attitudes and vested interests play a dominant role.

It is not surprising therefore that both WHO and the majority of countries are faced by a kind of conflicting situation, which is likely to continue for many years. The essential points of conflict between the two approaches may be recapitulated as follows. On the one hand, there is need for a scheme of permanent general health services, and its full implementation will inevitably take time. On the other hand, the solution of pressing health problems is a matter of urgency, since any excessive delay would raise a moral issue: the population would be deprived of the benefits—in terms of lives saved and sickness alleviated—readily available through the application of modern medical knowledge; it would also retard the removal of patent obstacles in the way of economic and social progress, for the reduction of mortality and morbidity will bring about an increase in productivity and a lowering of the high cost of medical care which is now straining the financial resources of many countries.

In this connexion, it may be pertinent to summarize the trends in WHO during the past years. The Organization's responsibilities as defined in its Constitution include the following: “to assist Governments, upon request, in strengthening health services”, “to furnish appropriate technical assistance... upon the request or acceptance of Governments” and “to stimulate and advance work to eradicate epidemic, endemic and other diseases”. But these mandates are so broad that in carrying them out the Organization must have regard to the conditions prevailing at a particular time or place. On that ground a considerable flexibility is essential, since the most effective method of “strengthening health services” in one country may be totally unsuited to another.

Before the formal establishment of the Organization, the Interim Commission had to consider the course of action it should follow in assisting countries. Thus, its report to the First World Health Assembly (1948) stated that, besides the necessity of carrying out the traditional duties of earlier international health agencies, the Commission “was confronted with the task of initiating a direct attack on the diseases
which were the principal causes of wastage of human life and effort. Of these, malaria, tuberculosis and venereal diseases were regarded as of... paramount importance". Consequently, almost all the field activities undertaken under its aegis were specifically devoted to those problems. Moreover, in its desire to satisfy the more pressing demands, the Commission gave prominence in its programme proposals for the initial period of the Organization's work to a number of subjects—these came to be known as "priorities"—from which the Assembly adopted the following: malaria, tuberculosis, venereal diseases, maternal and child health, nutrition and environmental sanitation.

These decisions were undoubtedly influenced by the fact that potent tools such as residual insecticides and penicillin were at hand, that mass coverage with BCG was practicable, and that the "non-communicable disease" priorities represented momentous challenges that had to be accepted forthwith. At the same time, however, the WHO governing bodies were aware of the need for general health services, as the following statements indicate: "An effective and strong national public health service in each country is a condition for the realization of any extensive national or international programme... it is considered desirable that WHO carry on further intensified studies in order to develop standards for organization and methods of public health and to strengthen the public health services in many countries".

The concept of priorities had a great influence in shaping the early activities of the Organization. The Annual Report of the Director-General for 1950 stated that in view of that fact "most of the Governments which have requested advisory services during the last two years have asked for assistance in these special fields". It was nevertheless clearly recognized that this type of approach would not by itself be sufficient, for the report continued as follows: "Recently, however, this type of assistance has been considered and used as a spearhead for the stimulation and promotion of general health services". The point was again stressed in the Report for 1951, in which it was stated that "more authorities are becoming aware that many campaigns for the eradication of diseases will have only temporary results if they are not followed by the establishment of permanent health services in those areas, to deal with the day-to-day work in the control and prevention of disease and the promotion of health".

The WHO Constitution calls for the preparation of a "general programme of work covering a specific period", to be submitted by the

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Executive Board to the Health Assembly for consideration and approval. In carrying out this responsibility, the Board resolved to limit such a period to a maximum of five years, undoubtedly keeping in mind the advisability of a periodical review designed to adapt the programme to "any changes thought necessary as a result of experience or new knowledge, and in order to assure a smooth and orderly evolution". It may be pertinent to review the three General Programmes so far adopted, in order to find out how the Health Assembly has considered on each occasion the subject matter of the present study.

The General Programme of Work for the First Period (extending from 1952 to 1957) recognized that, for the strengthening of national health administrations, the type of activities "to be initiated or developed will depend on the health problems of the country, its economic situation, and the availability of local technical personnel"; and that "the initiation of any specialized activity should be carefully considered in terms of the expenditure involved and the effect on the health of the mass of the people". It also acknowledged that "in many cases it has been thought justifiable during, the initial stages of development in the organization of health activities to start with projects in specialized fields...", adding, however, that those specialized projects "should be a stage towards the ultimate goal—a balanced and integrated health programme for the country".  

Among the main methods to be followed during the second period (from 1957 to 1961) the General Programme laid special emphasis on "national long-term health planning" and on "evaluation of health work". The ultimate need for general health services was more clearly outlined, while the organization of rural health services was depicted as one of the "outstanding problems, affecting many parts of the world, with which WHO will have to deal in the second specific period". Finally, in regard to the relations between general health services and mass campaigns, the Health Assembly approved the following significant statement: "The general trend towards integrated health programmes to replace specialized campaigns should be encouraged by WHO in every way in its dealings with governments".

For the third period (in force since 1962), the General Programme stressed the point that the Organization's assistance in any event should be rendered "in such a way as to ensure that the country is taking appropriate steps towards the ultimate goal of establishing and maintaining balanced and integrated national health services". While indicating that "on instructions from the Health Assembly WHO has sponsored campaigns against specific diseases and has promoted specialized

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services”, the General Programme predicted “that within the next five years governments will seek the assistance of WHO in converting these campaigns and services into more integrated programmes, and the Organization should be ready to provide this assistance”.¹

The present situation is well illustrated in the following excerpt from the Introduction to the Annual Report of the Director-General for 1962: “In the general effort devoted by WHO to the strengthening of national health services, one specific problem deserves to be mentioned: the need to find suitable and effective means whereby rural health services can progressively assimilate communicable disease control programmes as these approach the point of achieving their objectives... The process of assimilation is not an easy one and it will take years until it is substantially extended to the major communicable disease campaigns”.²

The foregoing quotations reflect the attention given to this matter since the earliest days of the Organization. Additional evidence is to be found in the records of discussions at numerous meetings of the governing bodies of WHO, in reports of expert committees, and in various Secretariat papers.

It is evident that the question is not a new one and that it does not admit of an easy and uniform solution. To arrive at a balanced national health programme developed countries have laboured for whole decades, and certainly most of them have passed through the painful, though necessary, period of trial and error. In such countries the specialized health programmes usually came first and were progressively merged, to become polyvalent in scope. But even in the developed countries the method of tackling a given problem still remains a subject for discussion. For instance, if a programme for cancer control is to be undertaken by means of the “mass screening” of a given population group, it may be contended that the task is best entrusted to specialized teams. Although logically such teams would use as far as possible the existing general health institutions (hospitals, health centres, outpatient clinics, etc.), the fact remains that some kind of specialized machinery would have to be created.

It is not therefore surprising that the question has developed into an important and controversial issue—even to the point of engendering acrimonious discussion in national and international circles. As it is a subject of considerable interest to WHO, if also a subject of great intricacy, the Organization will doubtless wish to maintain a flexible attitude, in view of the diversity of situations likely to be encountered throughout the world.

¹ Off. Rec. Wld Hlth Org., 102, 56.
GENERAL CONSIDERATIONS

It would appear that the relationship between the horizontal and the vertical approaches has often been studied on the basis of an erroneous assumption, namely, that the two approaches are mutually exclusive, and that there is little if any connexion between them. Regrettably, this tends to create the impression that general health programmes and special health programmes are not part of the same health effort and that they have different objectives.

The first requirement for the carrying out of mass campaigns is to obtain the fullest and earliest possible support from all the components of the normal machinery of health administration. This should not prove too difficult a task at the central and regional levels, and in fact it is generally accomplished. Difficulties arise, however, at the "front-line" or operational levels, because of the complexity of the techniques, problems of logistics or, more frequently, inefficiency on the part of the peripheral health services attributable to their low stage of development.

Accordingly it seems necessary to accept the fact that most of the field work connected with mass campaigns cannot be assigned to the peripheral units of the general health services, and that in consequence special teams must be used during a certain period. Obviously every effort should be made to co-ordinate the activities of the two services with a view to the earliest possible merger. Likewise, it is important to bear in mind that there are many factors, other than those of a strictly technical nature, which may justify differences between countries in methods of conducting a mass campaign of similar type. (Examples of such differences have been given in earlier paragraph.) For these reasons, it is conceivable that in most instances the choice should lie not between the vertical and the horizontal approach but in a combination of the two that takes account not only of differences of time, place and resources, but of the need to achieve the maximum of effect with the minimum of means and of the urgency of solving the particular health problem at issue.

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The conviction that general health services and mass campaigns are not conflicting but complementary approaches towards a common purpose is the basis on which the present study has been undertaken.

GENERAL HEALTH SERVICES

Absolute need

To insist that every country requires a well-developed system of general health services as a permanent feature is perhaps to state the obvious. Yet it may be useful to summarize some of the arguments in favour of such a system. In the first place, given the fact that any community—whatever the degree of its development—will always have a number of health problems attributable to a multiplicity of causes, clearly the most logical course is to tackle such problems on a wide front rather than through single-purpose measures. Secondly, it has been pointed out that a scheme of polyvalent and permanent institutions is more readily adaptable to the continuous changes in the health needs of the community that result from diverse factors. Thirdly, it has repeatedly been affirmed that health (in the broad sense defined in WHO's Constitution) is a fundamental goal in general development and, as such, cannot be satisfactorily achieved unless the health programme is closely connected with the over-all process of general development. By that token there is need for at least a minimum scheme of broad-range health services planned on a long-term basis and able to stimulate the efforts of the community and work side by side with other public services.

Characteristics

The general health services thus constitute the mechanism by which a country should seek to satisfy the ever-present, constantly changing and multiple needs and demands of the population for preventive and curative care. In order to perform the wide variety of functions involved as efficiently as possible, this mechanism should have certain fundamental features, which will be discussed below.

Some of the characteristics may appear to be somewhat too sophisticated, and on that ground not strictly relevant to the question of the relationship between general health services and mass campaigns (within the meaning given to these terms in the present paper) in areas where the former are either non-existent or have not yet reached a sufficiently high degree of efficiency. However, such features are indispensable if the peripheral constituents of the services are to carry out their duties, no matter how elementary, with efficiency. Otherwise,
the area may have a certain number of isolated units, but not a real scheme of general health services.

Organizational structure. General health services have been defined as an organized system—a term which presupposes the existence of a proper mechanism of articulation among all its constituent units. While the organizational details will differ from country to country, the system is generally based on a pyramidal structure, with three clearly distinct levels: the local level, comprising peripheral units (health centres, health posts, etc.) to carry out the actual work of providing direct care to the people; the intermediate level (this in turn may be composed of several echelons, i.e., regional, district, zonal services), to provide for immediate guidance and on-the-spot supervision of the local level; and the central level, responsible for establishing general standards and assuring unity in the general direction of the whole system.

The point has already been made that, for the limited purpose of the present study, the intermediate and local levels are of paramount importance: the intermediate level because of its responsibilities for immediate supervision—perhaps the key to the success or failure of any kind of health work. As regards the local level, this may be composed of different types of institutions, varying enormously in size, complexity of functions and facilities available, from a large centre located in an urban area to a simple post manned by a single auxiliary nurse in a small, remote village. But whether elaborate or rudimentary, all these institutions have the common, fundamental duty of keeping close contact with the population in order to apply certain basic measures for the prevention of disease and the promotion of health (basic health services).

A distinction is commonly drawn between urban and rural health services. It is always an arbitrary distinction. There are no universally acceptable criteria for establishing a dividing line between rural and urban areas. Besides, these terms may create the impression that two types of health services are necessary—the choice of services depending on the demographic characteristic of the area. While it is true that the health problems of cities are not always identical with those of rural areas, there are many reasons why the fragmentation of health care for the population cannot be recommended. The services for rural areas must depend on those provided for urban areas if the indispensable supporting facilities, referral centres and supervision are to be available. Nevertheless—in spite of this cardinal point—the present paper devotes special attention to the basic health services for rural areas, since most of the difficulties connected with mass campaigns arise in those areas. They are referred to as “peripheral health services”.

Permanency. The second feature to be mentioned is the stability of the services, both in time and space, in order to maintain continuous contact with the population to be covered. This is essential in view of the long-range character of their functions, and also in view of the need for a thorough knowledge of the people as the basis for efficient educational and promotional activities. Sporadic contacts with the population are clearly not the best way to offer basic health care, and they preclude the establishment of firm foundations for the orderly expansion of the general health services at local levels.

Participation in community life. In their own interest, the basic health services must concern themselves not only with the performance of duties strictly related to the preventing or curing of disease, but with all factors affecting the physical, social and mental well-being of the individual. Accordingly they must form an integral and active part of the over-all social and economic effort for improving the living conditions of the populations as a whole and, by the same token, have a broad outlook and co-operate with other public services such as education, agriculture and community development programmes. In turn, they should try to obtain the active collaboration of all persons in the community health programmes.

Adaptation to needs and resources. It has been suggested above that the general health services should have regard to all factors affecting the health of the community. Admittedly, this is a rather ambitious goal, for nowhere are there sufficient resources for its attainment. This is particularly evident in the rural areas of most developing countries: where peripheral health services exist, they are usually rudimentary, being staffed by inadequately trained auxiliary workers and equipped with poor working facilities; proper guidance and supervision are also lacking. In such cases the scarcity of resources makes it imperative that the peripheral services should receive a realistic orientation, concentrating their attention on carefully selected and precise tasks directly linked to the most urgent problems. The activities chosen should be those which, in relation to the personnel resources and working facilities, may be expected to yield successful results. In this connexion, the first task is to implant a preventive outlook rather than the mere palliative or curative outlook which prevails almost everywhere.

The foregoing requirement is closely connected with the national health planning, an outstanding aspect of which is to determine the relative priority of the health problems to be attacked. It is gratifying to know that many countries are seeking WHO's collaboration in this fundamental task. If the principle of adhering to an order of priorities is strictly applied, the role of the general health services in connexion
with mass campaigns can be more readily visualized and emerge as a practical and desirable goal. In fact, since communicable diseases amenable to mass campaigns constitute by far the largest and most pressing problems for many developing countries, the general health services—existent and prospective—must be oriented towards that type of work, so that they may participate to the full extent of their capacity and according to the technical requirements of the campaigns.

Capacity for change and expansion. The initial concentration of the general health services on given health priorities should be viewed as the starting point of a dynamic process. As the health problems originally selected are gradually solved, others should progressively be brought forward for attention in accordance with the schedule of priorities. In other words, the services should be flexible enough to adapt their work to changes in objectives and in the scope for action. In addition, they should be ready to accept increasing responsibilities, expanding their activities as more resources become available. In this way, they will serve as the focal point for the orderly growth of the national health organization.

MASS CAMPAIGNS

At the risk of repetition, it must be emphasized that the building up of an adequate system of general health services is a process that can be measured only in terms of decades. It requires not only the availability of financial resources, but the creation and maintenance of a permanent cadre of health workers, both professional and auxiliary. The question of personnel is indeed a most difficult one in view of the shortage of trained staff and the even more acute shortage of persons suitable for training.

Moreover, experience has shown that it is very difficult, if not virtually impossible, to establish general health services in places suffering from the impact of certain mass diseases, "scourges which are so widespread, and affect so high a proportion of the population as to be a dominant factor in hindering the social and economic development of a country".1 It has repeatedly been shown that a substantial reduction in the prevalence of such diseases is necessary before the true significance of other health problems can become apparent, and before a rational plan can be drawn up for the long-term development of general health services. Finally, experience also indicates that mass diseases are so firmly rooted in most of those places that their prevalence cannot

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be lowered substantially except by the systematical and intensive application of specific and concurrent measures over large areas, that is to say, through the vertical approach of a mass campaign.

It may be argued that the decrease and even the elimination of communicable diseases in certain areas have gone hand in hand with the over-all progress and the improvement of living conditions as a whole. The cases of the progressive reduction of malaria, leprosy and trachoma in temperate zones are often cited as examples. While this factor cannot be disputed, it must be borne in mind that the achievements in question have required a period of time longer than is desirable or permissible today, when developing countries are under strong pressure to solve their peoples' needs and demands as quickly as possible and when the present state of knowledge regarding certain diseases offers a possibility of reaching that objective within a relatively short period.

The above-mentioned considerations seem to be sufficient to explain the tendency in recent years to undertake mass campaigns. Interest in such campaigns has not been confined to individual countries, but has also been a stimulating force for international collaboration, both on a multilateral and a bilateral basis. For instance, it is widely known that WHO has not only assisted countries upon requests from individual governments, but has stimulated the development of some campaigns on a world-wide scale.

**Criteria for implementation**

It follows that, while mass campaigns are not a universal need in the same way that general health services are, they are of undoubted value in certain areas. It was suggested above that the decision whether a mass campaign is or is not the suitable method of dealing with a given communicable disease in a particular country must depend upon various factors connected with the disease, as well as upon the factors of place and time. In other words, before any mass campaign is initiated, a careful analysis should be made of the relative weight of many relevant factors, amongst which are the following:

**Intrinsic importance of the disease.** This factor is so self-evident that it will be enough to stress the point that the intrinsic importance of a communicable disease in a given area cannot be judged exclusively in terms of the usual indices of mortality and morbidity reports. Even if reliable, such reports do not adequately reflect the impact of certain diseases which are outstanding as causes of disability, of incapacity for work, and of permanent crippling effects. For instance, the exceptionally heavy prevalence of leprosy, yaws, trachoma, onchocerciasis and
ancylostomiasis in some areas does not appear to be properly reflected in the usual statistical mortality and morbidity returns. In general, however, the amount of basic information accumulated over the years—supplemented, where necessary, by ad hoc surveys—can provide the necessary evidence for viewing a particular disease as an important health problem for a given area.

Economic considerations. It is a well-accepted fact that some mass campaigns raise the productive capacity of the population within a short time, and in that sense they become real pace-makers for the economic development of a country. In such cases governments may find it advantageous to treat the implementation of the campaign as a pre-investment programme and to seek international support for it on that ground. This point deserves special attention in the newly independent and emerging countries, where the concept of accelerated programmes for social advancement and economic progress has been advocated.

Attitude of the population. The possibility of obtaining rapid demonstrable results is another point that is often advanced in favour of undertaking mass campaigns. Many examples drawn from areas previously ravaged by malaria, trachoma and yaws show that the population clearly recognizes the benefits accruing from such campaigns. This is undoubtedly of great value in creating a more favourable atmosphere for health programmes of a broader scope, or for specialized programmes which by their nature take a longer time to yield manifest results. It follows that certain mass campaigns are particularly suitable for preparing the ground for the permanent, though less spectacular, work of the general health services.

Technical requirements. The existence of specific measures (technical tools) of demonstrated value in combating a particular disease is generally accepted as a prerequisite for the launching of a mass campaign. In the absence of such measures, the proposed tool must undergo preliminary trials before being put into practice on a large scale. The type of tool or tools to be used will depend, of course, on the type of disease and its ecological features in a given place and at a given period. For instance, the aim may be to intercept a vector (residual insecticide spraying in malaria), or to deplete as quickly as possible the human reservoir of infection (treatment of infectious cases of yaws, tuberculosis, etc.), or to increase resistance in otherwise susceptible individuals (prophylactic vaccinations), etc. In any event, the tool must have a clearly effective value in the interruption of the epidemiological cycle. Of course, in some campaigns it is not merely advisable but necessary
to use more than one tool, where they are available, and where the particular situation so warrants.

Operational feasibility. Even where effective technical tools are available, the success of the mass campaign will depend on an adequate application of the tools. Accordingly, mass campaigns must satisfy certain operational requirements, among them: (i) clear, precise schedules of work to allow for contact with the population at appropriate intervals and over the whole period required; (ii) well-defined techniques of application of the tools; these should be as simple as possible and amenable to standardization, so that most of them may be carried out by auxiliary personnel; (iii) frequent, expert supervision at all levels, as one of the keys to success; (iv) simple and clear systems for reporting and for a careful evaluation of the work in relation to the pre-planned goal—either retrospectively (comparing the accomplishments with the level of prevalence at the beginning, as is usually done in control programmes) or prospectively (assessment of what remains to be done in order to reach the target, i.e., “zero” cases in eradication programmes); and (v) a clear understanding of the steps to be taken from the early to the late phases of the campaign in order to effect the gradual transfer of responsibilities to the general health services without jeopardizing the results already obtained.

Administration facilities. The administrative arrangements for mass campaigns will depend not only on the nature of the individual disease, but on the circumstances prevailing in a given area. In this connexion, the general administrative and political organization of the countries is the governing factor in determining the administrative details of the programme. In any event, the arrangements should be clearly known at the outset of the campaign and carefully re-examined throughout its stages, in order to meet the technical and operational requirements outlined above. It is especially important: (i) to provide the flexibility that is indispensable for a smooth running of the campaign and for its prompt adaptation to unforeseen situations; (ii) to make an objective estimate of the costs, according to the number and type of special staff needed for the direction, supervision and execution of the programme, as well as of the cost of equipment, transport and other working facilities; (iii) to assess the collateral expenses to be expected on account of the participation of the general health services; and (iv) to make a realistic analysis of the financial means available or likely to be available in relation to what is needed for the successful achievement of the pre-planned objectives. As regards the last point, particular account should be taken of the local resources, for experience shows that many
campaigns have failed because the financial implications for the country concerned were underestimated.

Consonance with national health policy. It is an obvious prerequisite that the planning and implementation of any mass campaign should be envisaged within the framework of the general health policy of the government concerned. This important question will be discussed in a later section of this paper.
ROLE OF GENERAL HEALTH SERVICES
IN MASS CAMPAIGNS

The involvement of general health services in mass campaigns should normally embrace the three traditional structural levels. However, for the reasons previously indicated, the present paper is confined in the main to problems connected with the role of the two lower levels—namely, the intermediate and the peripheral health services.

THE NEED FOR PARTICIPATION

It is theoretically conceivable that a mass campaign could be planned and carried to completion in so self-sufficient a fashion as to remain entirely separate from other health activities. From a realistic point of view, however, this is neither practicable nor desirable, for a number of reasons, some of which are examined below.

Interdependence of health problems

It is axiomatic that health is an indivisible whole. As a matter of principle, any health activity, even the most specialized, must be viewed, not as a separate entity, but as an integral component of a single programme having a single objective. Accordingly mass campaigns and general health services must be developed as interdependent, closely knit activities with a view to their fusion in a unified health programme.

This basic assumption of interdependence is not merely important from an academic point of view; it has far-reaching practical implications. It explains and justifies the need for effective co-operation between the two approaches so as to obviate the duplication of efforts and personnel and the waste of funds. This becomes increasingly important as countries embark on several mass campaigns concurrently.

The technical and operational requirements of a mass campaign may call for special machinery for field work, particularly during the early stages. Yet even in such cases it is important to consider using the peripheral health services or—where necessary—stimulating the setting up
of such services. The participation of the peripheral health services —however slight their contribution—must be sought at the outset, in the interests of economy and the smooth running of the campaign during the later stages, and with a view to securing the informed support of the population. These services are indeed in a position to furnish valuable help: knowledge of the area and of the people’s habits and beliefs; clinical and epidemiological data, even if rudimentary; provision for the accommodation of staff and the storage of supplies; introduction of the campaign personnel to the population and the community leaders, etc. Likewise, where the degree of their development permits, the peripheral services can be called upon to perform certain laboratory tests, carry out health education activities and undertake home visiting, among other tasks, thus obviating the creation of special facilities for each campaign. Finally, the association of these services with a mass campaign is of great psychological value, since it enables the members of the community to appreciate the role played by their permanent institutions in a programme which is so obviously beneficial. The prestige of the services is thereby enhanced.

The law of diminishing returns

In general, mass campaigns are based on a schedule of successive stages (phases), each of them with well-defined operations and purposes. The participation of general health services becomes particularly important at the late stages (“consolidation and maintenance” stages), at which the outstanding problems commonly known as epidemiological surveillance and epidemiological vigilance manifest themselves.

Where certain mass campaigns are concerned, it is necessary, before entering the late stages, to fulfil the epidemiological criteria which have been laid down on the basis of experience and/or theoretical considerations. Thus, according to the recommendations of the WHO Expert Committee on Malaria, the main method of attack (spraying) may be discontinued and the consolidation phase of a malaria eradication programme started when “complete interruption of transmission has been achieved throughout the area”, when “the reservoir of residual cases has been depleted to such a level that surveillance operations might be expected to prevent the resumption of transmission”, and when “adequate surveillance has been established”. In regard to yaws campaigns the WHO Expert Committee on Venereal Infections and Treponematoses points out that in Indonesia the consolidation phase “begins immediately after the completion of a resurvey in which at least 80% of the population were covered, and in which the prevalence

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of active yaws did not exceed 2%, and that of infectious cases not more than 0.5% of the people examined". These criteria seem to have gained general acceptance elsewhere.

In connexion with the campaigns mentioned above, the respective Committees have emphasized the fact that the consolidation phase must rest on an efficient system of surveillance aimed at the discovery and treatment of the actual or potential infectious cases still remaining, and which will take the necessary measures to obviate further transmission. This type of operation, however, becomes extremely complicated and costly if carried out by machinery devoted exclusively to such tasks; in fact, the expenditure of effort and money involved would put it far beyond the reach of most countries. This is especially important in eradication campaigns, where the epidemiological surveillance must be based on total coverage—a matter to be discussed later.

There is therefore a point at which it becomes financially inadvisable to continue a mass campaign based solely on a single-purpose mechanism, and at which the law of diminishing returns begins to come into play. The Committees under reference point out that "in the course of an endemic treponematoses eradication campaign the time comes when it is not economical to continue periodical resurveys because the prevalence of active lesions is low and thus to find each case becomes relatively expensive") and that, in the case of malaria, it has been estimated that the effective operation of surveillance activities by special teams would cost, per annum, 65% to 75% of an attack mechanism.

Even if countries could afford the cost of achieving consolidation through the sole medium of specialized ad hoc machinery the problem would not be completely solved. There will always be need for a permanent mechanism to ensure freedom from reintroduction of the disease and from re-establishment of endemicity in the case of eradication campaigns, and to keep the prevalence as low as possible in the case of control programmes. In neither of these cases would it be reasonable to expect countries to assume the financial burden of maintaining costly machinery for the sole purpose of coping with a single problem.

The examples recorded by WHO from many sources may serve—more cogently than theoretical arguments—to illustrate the risk of diminishing returns in a mass campaign which the lack or temporary failure of an adequate mechanism for surveillance represents:

In Mauritius a decrease in malaria incidence started in 1945, but after a campaign of DDT spraying conducted between 1949 and 1951

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the transmission was reduced to such a low level that the disease ceased to be a major public health problem. By about 1956 reports reaching WHO indicated that the disease was practically eradicated, but in 1958 some residual foci were detected. The confirmation of almost 1200 cases in 1960 made it imperative to respray the relevant areas, in spite of which 995 cases were discovered in 1961 and a further 226 cases in 1962. Thus, the Government, with the collaboration of WHO, had to take steps to strengthen the surveillance mechanism with the active participation of the existing network of rural health services.

In Cameroon, in an area around Yaoundé, the transmission of malaria was halted after three years of spraying operations (suspended early in 1960). But, because of its inadequacy, the surveillance mechanism was powerless to prevent the subsequent renewal of transmission, as shown by the following figures: from 360 cases recorded in 1960, the number rose to 2314 in 1961 and 6217 in 1962.

Over the whole area of Lebanon, the malaria eradication programme is approaching the end of the consolidation phase. Nevertheless, in one part of the country where no malaria cases had been recorded since 1960, a small outbreak was revealed at the end of 1962. On investigation it was found that the sources of infection had been present for two consecutive months without being detected by the existing surveillance mechanism.

In China (Taiwan), where the programme of malaria eradication is far advanced, three small well-defined foci of transmission were discovered during 1962, together with the reactivation of transmission in an old focus. These foci were the result of relaxed vigilance, which had allowed transmission to continue for some time.

The risk of diminishing returns has also been evident in the yaws mass campaigns. The Second Asian Yaws Conference (1962) summarized the situation as follows: “In all areas the problem of the persisting appearance of sporadic infectious cases in the latter stages of campaigns is being encountered... Instances are also occurring of localized outbreaks in areas already covered by mass campaigns or in consolidation”.1

Smallpox is often presented as the best example of an “exportable” and “importable” disease, particularly nowadays when traffic between one country and another, and even between continents, is often a matter of hours. That this is a persistent danger is shown by the fact that, according to the ninth and eleventh reports of the Committee on International Quarantine, between 1 July 1960 and 30 June 1962 WHO received reports of twelve importations by air traffic into European

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countries, some of them followed by serious outbreaks necessitating the adoption of emergency measures. It follows that countries where smallpox has been eradicated, whether by means of specialized campaigns or through routine immunization by the general health services, still need an adequate mechanism capable of ensuring either a permanent high level of immunity among the population or the prompt introduction, as and when required, of measures such as isolation and community-wide immunization.

Other examples of the risk of diminishing returns might be cited. In the important field of zoonoses, for instance, it has been pointed out that a rabies eradication campaign in Malaya, conducted very satisfactorily during the early stages, has subsequently failed to consolidate its results because of a lack of appropriate surveillance.

**REQUISITES**

It is not enough to recognize that general health services should participate in mass campaigns. The heart of the problem is to find out how the idea may be translated into reality—a process calling for compliance with certain fundamental principles, some of which are discussed below.

*Creation of favourable attitudes*

For the proper discharge of any functions assigned to them, all workers in the general health services must be firmly convinced of the principle already mentioned—namely, that mass campaigns are not separate activities but an integral part of the over-all health programme of the country. This is a cardinal requisite if the services are to make a truly effective contribution. Otherwise, there will always be a risk that participation in mass campaigns may be viewed as an artificial load, superimposed on the normal, traditional duties of the general health workers.

Although regulations are necessary in order to establish clear lines of authority and define the functions assigned to each member of the health team, it would not be safe to rely on them exclusively. What is of the highest importance is the steady and persistent labour of persuasion and education at all levels, but more particularly directed at the "front-line" group of auxiliaries working in the peripheral health units. The educational process must emphasize that these workers are true partners, not mere collaborators, and that as such they will have a share in the success or failure of the undertaking. The interest of the personnel should be engaged from the outset and maintained throughout the
campaign. Personal contacts and periodical reports on the progress achieved and the difficulties encountered are valuable means whereby to attain that goal.

Failure to foster and maintain the devoted interest of the staff may lead to the unfortunate situation in which the general health services remain passive spectators rather than active participants, and, even more dangerous, to the development of a kind of mental resistance towards the campaign.

The task of creating a sound spirit of team work should embrace all categories of staff within the health organization, including professionals of the several disciplines. The integration of activities can hardly be advocated unless the ingredient of "integration of concepts and purposes" among all the human elements of the organization is already present.

Early and gradual participation

It has been suggested that the ideal pattern would be to obtain the participation of the general health services at an early stage in mass campaigns. Although this broad principle should be followed as closely as possible, it is not usually feasible, in view of the various circumstances mentioned in previous sections of this paper. In this respect, a distinction may perhaps be drawn between the three structural echelons of the general health services. At the central and the regional levels, participation does not seem to raise insurmountable difficulties, and is in fact usually accomplished at the start of most mass campaigns. It is true that the situation is not always satisfactory, and that a better relationship might avert many of the problems that are commonly met. But the crucial question arises at the peripheral echelon. Accordingly the observations that follow are devoted almost exclusively to that question.

The intrinsic characteristics of certain mass campaigns permit them to use the peripheral health services to advantage from the early stages, even where the services are rudimentary and situated at scattered points. It is now being proposed that in the case-finding and follow-up treatments of infectious cases of tuberculosis in rural areas, the auxiliary personnel of polyvalent health services might be made responsible for sputum collection, referral of suspect persons to better-equipped centres, and surveillance of patients taking drugs at home. This is predicated on the proposition that a tuberculosis control programme "must be established and developed as a part of the existing general health services in such a manner that it fully utilizes these services and, at the same time, promotes their development", and that the specialized activities "should
therefore be rigorously restricted to those fields or elements where specialization is absolutely essential on technical grounds".\(^1\)

A similar view has been expressed in regard to leprosy campaigns. It must, of course, be accepted that given the low degree of development of the basic health services in the areas where the disease is highly prevalent, the mass approach, for periodical and systematic case-finding in large population groups, has to be entrusted in large measure to special teams. But even in those areas the most elementary health services could participate from the outset by distributing drugs to patients located within their zone of operation and by reporting patients who fail to attend regularly—all this leading to the reduction of the number of special teams for treatment. "This could be done at once, with some training. With the experience gained and with further and proper training… the health cadre… can little by little take on the follow-up of patients under treatment, the follow-up of discharged patients and relapsed cases, examination of population groups, and application of simple physiotherapy".\(^2\)

The requirements of other mass campaigns are such that the early participation of peripheral health services does not appear to be equally feasible. The undertaking of "crash" programmes for smallpox, yaws and malaria eradication, for instance, requires a concentrated and well-timed operation covering large areas within a relatively short interval of time. It is known that in most areas the staff of the peripheral health services do not have the ability or a sufficient range of action to ensure the necessary geographical coverage. In such a situation the only realistic method is to develop the operation under the exclusive, or virtually exclusive, responsibility of specialized teams.

In summary, it is not possible to lay down definite rules as to the precise moment at which the peripheral health services should be actively associated with mass campaigns. The decision will depend not only on the particular disease, but on other elements such as its local epidemiological behaviour—for instance, prevalence level and transmission rate—the degree of efficiency of the services, and the administrative features of the country concerned. One point should however, be stressed: that, however modest, the participation of the peripheral services should start as soon as possible and be expanded progressively, so that problems connected with the end-point of the mass campaign do not—as has generally happened in the past—arise too abruptly.

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Definition of responsibilities

Finally, the role of the basic health services must be viewed as an obligation rather than a mere collaboration with the mass campaign: in other words, it should be made clear that any functions assigned to those services are not less essential than their normal, continuing duties. Consequently, the functions must be explained in detail, so as to be fully understood by the health workers concerned, particularly the low-grade auxiliaries. The issue of manuals and analogous documents is valuable provided that their usefulness and applicability in the field are constantly reviewed.

Factors determining the degree of participation

As has already been indicated, it is not possible in the present paper to suggest uniform patterns for the participation of general health services in mass campaigns. The extent and manner of any such participation should be determined in relation to a number of factors; some of these are discussed below.

Nature of the campaign

Consideration must be given in the first instance to the characteristics of the disease against which a mass campaign is designed, for they will determine the procedures to be used, the frequency of contacting the population, the degree of skill required for applying the appropriate technical tools, etc. They will also determine the technical and operational needs, and in turn the choice of functions to be assigned exclusively to specialized personnel.

This question is closely linked to the chronological sequence of mass campaigns inasmuch as their needs undergo change as the operation proceeds. While mass campaigns show variations, in general most of them comprise two broad stages, as follows:

Early stage. This stage is characterized in some campaigns by a wide, intensive and systematic application of specific tools designed to reduce transmission and thereby lower incidence and prevalence levels within a relatively short interval of time ("knock-down" effect). Typical examples are: residual insecticide spraying in a malaria programme; the initial mass survey and treatment and the yearly resurveys in a yaws campaign; and the initial large-scale immunization in a smallpox programme. These are "crash-type" operations intended to break the epidemiological chain. In other mass campaigns, however, this stage is not so well defined for the characteristics of the disease
may necessitate continuing the operations over a prolonged period, as in the case of tuberculosis, leprosy and trachoma programmes, which require frequent contacts with the population for a number of years. They may be defined as "long-term" campaigns in contrast to the "crash-type" campaigns referred to above.

It may be pertinent at this point to consider the early stage of the "crash-type" mass campaigns. Where smallpox is concerned, it has been indicated that in a highly endemic area the disease "is generally held to disappear if the successful vaccination of at least 80% of each population group in a country is achieved within five years from the commencement of the campaign". Furthermore, the campaign should cover a large area, i.e., the country as a whole, or at any rate in the case of a large country, extensive regions. These requirements call for the use of a suitably mobile machinery, for in most areas the existing peripheral health services must of necessity limit their participation to providing supporting facilities and vaccinating the population in the immediate vicinity. This has been amply demonstrated in certain Latin American countries, where the success of vaccination campaigns depended on the use of mobile specialized teams exclusively assigned to the task.

Similarly, in the early stage of a yaws campaign there is need for the total and rapid coverage of the population. The fact that yaws is typically rooted in the most remote areas is an additional reason warranting the use of mobile specialized teams. In this case also, every effort should be made to enlist the fullest possible participation of the peripheral health services.

In temperate zones, where many natural factors combat the perpetuation of the transmission cycle, it has been found possible to conduct successful malaria campaigns with a substantial participation of the existing basic health services. But the conditions prevailing in tropical areas are quite different: malaria is so firmly rooted there that the breaking down of the transmission cycle would be impossible if the "crash" operation were not undertaken directly by machinery set up for that exclusive purpose.

The situation in regard to long-term programmes is somewhat different. Thus, in the case of tuberculosis the initial mass approach through a large-scale BCG vaccination project calls for special teams in order to ensure a complete coverage of the population within a predetermined period. Thereafter, however, if vaccination is to be continued, serious consideration should be given to associating the basic health services with the work as fully as possible. Other funda-

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1 Unpublished working document WHO/A15/P x B/18, p. 2.
mental elements of a comprehensive campaign, such as case-finding, the administration of drugs, and the domiciliary treatment of infectious cases, may suitably be assigned from the outset to the basic health services as part of their normal duties. In fact, these elements fall naturally within the traditional procedures of the services—namely, health education, home visiting, provision of medical care, mobilization of the community’s individual resources, etc. “The character of tuberculosis epidemiology and available control tools is such that... the services to be established must have the character of permanent programmes not of emergency campaigns... BCG vaccination, drug therapy and microscopic examination of sputum are all control tools that can be handled by health personnel with very little specialized training”\textsuperscript{1}.

Finally, mention should be made of the campaigns against diseases in which present available knowledge indicates that the vector or the extra-human reservoir is the most vulnerable point of the transmission cycle. The work is likely to evolve into somewhat elaborate and prolonged procedures for the transformation of the physical environment. In the case of bilharziasis, for instance, the procedures range from the application of molluscicides to changes in agricultural methods and major engineering works. Logically, little direct participation in such activities can be expected from the basic health services, apart from their efforts in connexion with health education and the treatment of individual cases. This is also true of certain other campaigns—for example, the campaigns against \textit{Aedes aegypti} in the Americas and against the vectors of onchocerciasis and trypanosomiasis.

\textit{Late stage.} The transition from the early to the late stages has been defined, in respect of certain mass campaigns, on the basis of specific epidemiological and operational criteria. In general, the main task at the late stage is the identification and proper follow-up of the remaining infectious or potentially infectious cases with a view to gradually depleting the reservoir of infection, maintaining the lowest possible prevalence and, if possible, achieving the eventual eradication of the disease. There is general agreement that the role of the general health services assumes a cardinal importance at this stage—an importance which, as is indicated below, has been recognized and proclaimed ever since the inception of certain mass campaigns sponsored by WHO. In 1949, the WHO Expert Committee on Venereal Infections recommended the undertaking of large-scale campaigns against yaws in areas “with high prevalence of disease, the mass attack being based on the use of repository penicillin preparations”, but at the same time suggested

\textsuperscript{1} Unpublished working document WHO/TB/Techn. Information/17.
that “at the present stage of planning the establishment of a sound minimum administration and other control machinery be studied, to enable health administrations, with the necessary outside assistance, to consolidate the public-health gains obtained by the initial mass approach; considerations should include the study of measures for the prevention of reinfection”.¹ Four years later the Committee stressed that while the early results of mass treatment campaigns had been encouraging, such initial gains had to be consolidated, since the ultimate success of the campaigns was, in the long run, dependent on the adequacy of permanent, local health services. “The planning of such local health services should begin at an early stage so that permanent facilities are at hand upon the conclusion of the mass campaign”.²

Similar views were expressed in regard to trachoma programmes. In 1955 the WHO Expert Committee on Trachoma defined as the later stage of an anti-trachoma project its “integration in the normal activities of the public health service” and stated that “if this is done, it should be possible for the public health authorities to maintain the control of the disease after the termination of a campaign”.³

It is therefore evident that the difficulties encountered in the late stages of these mass campaigns result from differences of opinion not so much on the proper procedures to apply as on the practical method of applying them. In fact, the pace of development of the basic health services has fallen short of the duration of the early stages of mass campaigns: the disparity has doubtless been caused by the scarcity of financial and personnel resources in countries which have to earmark most of the available means for the sizable commitments which the mass campaigns represent.

Although circumstances have thus limited opportunity, it must also be recognized that no appreciable efforts have been made to lay down clear-cut procedures for the gradual involvement of the basic health services. This would entail a study of the functions to be performed, the training of auxiliary staff for the identification and handling of infectious cases, the organization of supervisory and supporting specialized teams at regional and central levels, the assessment of manpower and other needs for maintaining an effective system of surveillance, etc. Other aspects to be considered would include the means of communication, the distribution of the population, nomadic and migratory movements and, not least, the cumulative effect upon the peripheral health services of assuming additional duties in connexion with several mass campaigns, whether conducted simultaneously or in sequence.

This last point is of especial importance, since mass campaigns vary widely in terms of technical procedures, periodicity of contacting the population, extent of the coverage of the population both in time and in depth, degree of supervision, etc.

The question of coverage is most important in the case of eradication campaigns, in connexion with which peripheral health services must rely on a balanced combination of active and passive methods for the detection of residual cases. Accordingly, the services should be equipped not only to provide, on a permanent basis, medical care at any time in their health posts (the static element), but also to maintain periodic contacts with the population in their homes (the dynamic element). The whole matter is of considerable practical importance, and might with advantage be made the subject of field trials designed to obtain vital information on the quantitative and qualitative needs of the peripheral health services in serving mass campaigns.

The problems encountered in a malaria eradication programme illustrate the points made above. The ninth report of the WHO Expert Committee on Malaria¹ recommended broad guide-lines in regard to the staffing, supervision, and functions of peripheral health services during the surveillance and vigilance phases of an eradication programme. While it is too early to determine whether the recommendations are or are not readily practicable—the process of implementation started only recently—it should be borne in mind that if the peripheral health services have to participate simultaneously in several mass campaigns the pattern recommended for malaria may not be fully adequate. For example, it is conceivable that some of the duties pertaining to yaws surveillance, namely, the “constant watching of yaws attendance at rural health centres” and the “immediate reporting of yaws cases to the nearest medical officer”, could be undertaken, whereas the other two activities recommended by the Committee, namely, “regular surveys of school children” and “occasional surveys of villages with few schools and at a distance from the health centres, and where no case of yaws has been reported for one year”, may necessitate additional manpower. The requirements of the services will of course expand pari passu with their acceptance of surveillance duties under other mass campaigns.

The suggested field trials, in the course of which all possible variables could be carefully assessed, would throw light on these various points. WHO has a challenging opportunity to sponsor fruitful research in this field of public health practices.

Grade of development

Apart from the intrinsic characteristics of the disease, the grade of development of the three structural levels of the national health organization constitutes a key factor in determining the extent, timing and manner of the general health services' participation in mass campaigns.

In this as in other cases previously considered it would not be realistic to attempt to formulate concrete suggestions. Compelling reasons may induce a country to start a mass campaign against a given disease even though the peripheral health services are very rudimentary, and at the same time to defer the commencement of other campaigns until the services reach a certain level of efficiency. By way of illustration, the trachoma and malaria campaigns in Morocco may be cited. A trachoma campaign was started as early as 1953, when the basic health services of the country were not well developed throughout the endemic areas. On the other hand, the health authorities decided to defer a malaria eradication programme until the services had reached a level ensuring their effective participation in the programme. In the former cases, the authorities doubtless considered that the country could not afford to wait any longer since trachoma was so potent a cause of sickness and disability, to the detriment of the national economy. In the latter case, an assessment of malaria as a health problem presumably indicated that it would be preferable to build up the rural health services and thus enable them to take part in the eradication campaign from the outset.

Where the general health services are well developed, it would be out of the question to exclude them from the conduct of a mass campaign. As an illustration, programmes for mass vaccination with living poliovirus vaccine can be, and indeed have been, carried out through the normal mechanism of general medical services, the use of specialized personnel being confined to specific tasks such as the evaluation of results, special epidemiological and immunological investigations, etc.

Quality of personnel

It is obvious that the development of the health services depends not only on the number of existing institutions, but also on the type of personnel already working therein or likely to be available in the future. Yet in most places where mass campaigns have been in operation or are contemplated, the peripheral health services are of necessity staffed mainly with low-grade auxiliaries. This very fact imposes a cautious attitude in the selection of duties to be entrusted to the personnel in question. Experience shows that auxiliaries can be very useful, pro-
vided that their duties are limited in number, well defined, easily understood and fairly simple to carry out. It follows that functions requiring greater skill or technical judgement should be assigned to a small number of better-qualified health workers strategically located. It would not be advisable, for instance, either on technical or on administrative grounds, to give direct responsibility for the microscopic diagnosis of tuberculosis or malaria to auxiliaries at every peripheral health post. Instead, it would be wise to develop a system whereby samples collected on the spot would be transmitted to a diagnostic centre, which would then report its findings promptly to the health posts, for the necessary action.

Supervisory mechanism

A network of peripheral health services cannot reach the level of efficiency necessary in mass campaigns unless the mechanism for guidance and close supervision functions properly at all times and at every level of the health organization. Indeed, it cannot be too strongly emphasized that the standard of supervision is the key to success or failure, above all in countries in which almost all the work falls of necessity on the shoulders of auxiliaries, and in which supervision is also exercised by auxiliaries of somewhat higher grades. There may therefore be a case for considering the use of specialized personnel to supplement the normal supervisory mechanism of the basic health services during the critical phases of mass campaigns, particularly eradication programmes.
PARTICIPATION IN MASS CAMPAIGNS:
SUGGESTED APPROACHES

Reference has been made in earlier sections to the difficulty of suggesting specific methods for enlisting the active participation of the basic health services in mass campaigns. Such a participation depends on a number of varied factors, ranging from the characteristics of the disease and the degree of efficiency of the services to the social, economic and even political system of the country concerned. In most areas where mass campaigns against major communicable diseases are needed, or are being implemented, the peripheral health services are so rudimentary and ineffective that, for practical purposes, they should be regarded as virtually non-existent. It may therefore be convenient to consider the question under three headings covering, respectively, mass campaigns that are being planned; those that are already in operation; and those that are on the point of completion.

PLANNING OF MASS CAMPAIGNS

It is obvious that the planning of a given mass campaign should flow from a recognition of the campaign as an essential element in the total health effort of the country. Indeed, cases arise where a particular disease constitutes so serious a threat to the health of the population that a mass campaign for its control or eradication cannot be delayed. In other cases, mass campaigns must be undertaken, irrespective of the degree of development of the general health services, because of their international significance—for example, those against quarantinable diseases.

A number of factors that are relevant in this context have already been considered, including the intrinsic importance of a disease in terms of human suffering and the feasibility of the programme in relation to existing and foreseeable resources. All these factors must be weighed with care, and it follows that in general the launching of mass campaigns should be preceded by realistic national health planning.
Relation to national health planning

There is at present a growing awareness that every country needs to formulate an over-all health plan. It is reflected in positive measures, both national and international. With the collaboration of WHO, for instance, some of the developing countries have started to prepare such a plan as an integral part of their general programme of social and economic development, and it is expected that they will thereby be enabled to pursue their health effort in a logical sequence, with due regard to priorities and to their present and foreseeable resources.

Health planning calls for the balancing of two elements: the importance of the problem and the volume of available resources. But to make a realistic comparison between these two elements is probably the most difficult of the tasks confronting the planner. It has been aptly said that the perpetual dilemma in health administration is "how to fill the gap between available knowledge and its practical application".

There is often a tendency to seek the simultaneous solution of too many problems. Though understandable in the light of urgent needs, it entails the risk that slender resources may be spread too widely and thus produce partial results of short duration. In the long run it would be wiser to concentrate on a smaller number of problems which, though tackled concurrently, might be open to lasting solutions.

A parallel risk to be avoided is that of starting programmes on too optimistic an estimate of financial support, since this may lead to competition among the several programmes for the limited resources of money and personnel. It is true that WHO is responsible for helping countries to avoid this danger, but success in maintaining a balanced programme ultimately depends upon decisions of each individual country.

Scheduling of programmes

Once the various health priorities have been fixed the next major step is to determine the order in which they are to be carried out and the resources to be allocated to each. This is indispensable since, as a rule, not all the major health priorities can be tackled simultaneously.

Improvement of the basic health services. In deciding the sequence in which the several health needs can be met, a country must always bear in mind that its ultimate objective is to develop—albeit from rudimentary beginnings—a system of permanent general health services. Accordingly a reasonable share of the available resources must from the outset be earmarked for that purpose, whatever the duration of the total programme.
The building of a system of general health services is, of course, an extremely lengthy process. Apart from considerations of finance, many years are needed for the erection of physical facilities, and above all for the training of the necessary personnel.

Selection of mass campaigns. It thus seems clear that although it will take many years for the peripheral health services to reach the desired level of efficiency, some countries will not find it possible on that account to defer the undertaking of mass campaigns against diseases classified as major and urgent priorities.

Certain of the principles to be applied to the selection of mass campaigns have already been enumerated. It should, however, be stressed at this point that the classification of a particular disease as a top priority because of its intrinsic importance does not necessarily mean that the mass campaign against it should be the first one to be undertaken. Indeed, there are many factors which may warrant its deferment: the lack of specialized personnel, the complexity of procedures requiring a multitude of supporting facilities, the high cost of the campaign in relation to the financial situation of the country, etc. Conversely, it may prove possible, with the resources available at the particular time, to carry out one or more campaigns of a lower priority. If so, there can be no reason not to start with the latter.

Some factors have an important bearing not only on the timing of the mass campaigns but on the participation, immediate or future, of the general health services. The peculiar characteristics of the disease constitute the first of these factors. In this regard a distinction must be made between: (i) mass campaigns requiring an initial attack, sustained uninterruptedly in time and space over a relatively large geographical area, and (ii) campaigns which may or should start gradually, the coverage of the whole area not being mandatory from the very beginning.

Examples of the latter category are the tuberculosis, trachoma and leprosy programmes, in which the epidemiological patterns of the disease enable the campaign to start in limited geographical areas, whence expansion takes place progressively. These characteristics make it possible, and indeed almost imperative, that such programmes should be intimately associated with the peripheral health services—even where these are in the earliest stages of development—and that the expansion of the programmes should run parallel with the growth of the services. An example of a campaign conceived along these lines is given in Annex 1 of this paper, which summarizes the “Recommendations for a District Tuberculosis Control Programme” issued by the Ministry of Health of India on the basis of the best available

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epidemiological data and of a realistic appraisal of the country’s resources.

Very different considerations apply to campaigns in the first category mentioned above, since the key questions that arise in connexion with their planning are: (i) should they be delayed until the basic health services of the country have attained the level of efficiency considered indispensable for their active participation? and (ii) if not, what is a suitable procedure for ensuring that those services are ready at the moment when they are needed to consolidate and carry forward the results obtained in the early stages of the campaign?

The answer to the first question is clear: under present conditions it is impossible in most developing countries to wait until a well-developed network of peripheral health services is functioning. The choice of such a course would entail denying to the people for many years, perhaps even for many decades, the benefits accruing from the use of proven, effective tools for the prevention of the major causes of death, sickness and disability. It would be indefensible on humanitarian, political and social grounds and unwarranted on financial grounds, since experience shows that mass campaigns against major communicable diseases serve to accelerate a country’s economic growth.

In summary, the starting of a mass campaign despite the absence of a satisfactory network of general health services is in many cases unavoidable and should not be opposed. At the same time, the countries in question should recognize the need to build up such a network and seek to reconcile the two approaches as advantageously as possible.

The answer to the second question is considered in the next section.

Possible alternatives

Many countries, faced by the simultaneous prevalence of several major communicable diseases, are compelled to make a crucial decision: Which of the diseases should be tackled first? This calls for an objective judgement. What is desirable must be weighed against what is possible, due account being taken of the relative importance of the many factors discussed in earlier paragraphs.

Experience has shown that the starting of any mass campaign should be preceded by an objective analysis of the epidemiological behaviour of the disease. As may be seen in Annex 2, an appraisal, made after an interval of some years, of a trachoma control programme in China (Taiwan) revealed that the results obtained, though on the whole encouraging, had fallen short of expectations because there was not sufficient knowledge of the local epidemiological conditions at the outset of the programme. As it appears that the operations were
carried out satisfactorily with the active participation of the peripheral health services, the problem in this case was of a technical rather than an operational nature.

These and other analogous considerations suggest that it would be extremely difficult, and indeed presumptuous, to recommend any kind of blueprint for the planning of mass campaigns. At most, some broad suggestions may be put forward. They should in any event be tested and adapted to local circumstances.

*Opening campaigns.* In establishing the sequence of mass campaigns it may be found advisable to start with those which require simpler techniques as well as fewer contacts with the population and which are likely to produce visible benefits within a short time. The standardization of procedures which is thus made possible facilitates the training and supervision of auxiliaries, while the need for fewer contacts with the population enables a relatively small number of workers (given the requisite mobility) to cover large areas rapidly. Similarly, the possibility of obtaining early demonstrable results serves to create a favourable attitude in the community, not only to the campaign in progress and to any subsequent campaigns, but to all health programmes generally.

Accordingly, the "crash-type" campaign, having both preventive and curative objectives, seems to be the one best fitted to open the way for further mass campaigns and subsequently for the broader development of general health services. A yaws campaign, for example, brings together the three elements of simplicity of techniques, possibility of rapid coverage, and production of benefits readily appreciated by the population. Smallpox or yellow fever vaccination campaigns, on the other hand, while offering the first two advantages, produce results that are less clearly evident—save where the campaign coincides with an epidemic. Trachoma control programmes also have some of the advantages in question, but the present treatment methods, though effective, entail far more frequent contacts with the population.

*Combined campaigns.* A country might also consider using the same personnel to develop simultaneously two or more mass campaigns. This would produce economies, since a single machinery would cope with two or more problems at the same time. Some attempts in this direction have already been made and others are now under way. In one country, for instance, it is reported that a campaign embracing yaws surveys and treatment, smallpox vaccination and leprosy case-finding is being conducted with success.

While this procedure offers certain obvious advantages, it entails a heavier work load and more manpower than does a single mass campaign for the coverage of a given area or population within a given
period of time. Moreover, a problem arises because of differences in the rhythm of the several campaigns at various stages and in the techniques that have to be used concurrently. This may cause difficulties in connexion with time-schedules, and thus hamper an economical use of the available manpower. Finally, it may complicate the training of newly engaged auxiliaries, who, though able to grasp a few related techniques, are likely to become confused by too much instruction at the start of their careers. It may therefore be preferable to begin with a mass campaign limited to a single problem. At a later stage it may be possible for the personnel to assume responsibility, total or partial, for other mass campaigns.

Sequential campaigns. Yet another alternative is open: to follow a procedure whereby a single machinery first concentrates on the early stages of a given mass campaign, and secondly—on completion of that task—turns to another campaign, though continuing at the same time the maintenance and consolidation of the former campaign. Thereafter, other problems may be tackled successively in the same way, pending the time when the peripheral health services are in a position to assume their responsibilities.

This idea was ventilated by the WHO Expert Committee on Venereal Infections and Treponematoses. Dealing with the problems faced in the late stage of yaws eradication programmes, the Committee suggested that “the measures against endemic treponematoses might then continue as part of a mass action against another disease”—this line of action being termed a “sequential approach”. It mentioned, as an example, what occurred in Bosnia, where “after retraining of field teams, following the endemic syphilis campaign, mycosis of the scalp is being attacked on a mass basis”. The Second Asian Yaws Conference also suggested that staff originally engaged in anti-yaws activities might combine follow-up activities with additional responsibilities for leprosy case-finding (provided that treatment could be properly followed on the spot), administration of simple treatments and prophylactic immunizations. “Accounts were given of the combined yaws/leprosy surveys during the yaws resurveys in consolidation in Indonesia, Thailand, Malaya and the British Solomon Islands. Combined yaws/smallpox vaccination campaigns have been carried out in Thailand and Cambodia”.

The sequential approach might therefore with advantage be made the subject of broader experiments. More field research is necessary in connexion with the problems that may arise such as the adjustment of the itineraries and time-schedules of interrelated operations, pro-

procedures for the training of personnel in their ulterior duties, etc. Such an approach may also represent the best method of allowing time for the development of the basic health services. Certainly from a theoretical point of view there are several points in its favour. First, it may be applied in countries that are financially unable to undertake more than one or two mass campaigns at a time. Secondly, the training of staff may be facilitated, for an auxiliary who has already acquired some knowledge of a specific subject will be more receptive to additional training, and the application of various techniques requires the same basic knowledge (contact tracing, health education and home-visiting procedures, elementary clinical understanding, etc.). Thirdly, economy in personnel and equipment is likely to result through the use of already proven staff and facilities, with a consequent decrease of the per capita cost of health activities. Finally, if the process of training continues, the auxiliaries may progressively become qualified as multi-purpose health workers, and ultimately be assigned to the general health services.

Obviously, the success of the sequential approach depends on a clear definition, from the outset, of the order in which the several mass campaigns are to be undertaken, so that the necessary operational steps and the training of staff may be planned in advance.

Pre-eradication programmes. As has already been emphasized, it would be quite exceptional—whatever the effort expended—to develop the peripheral health services within the relatively short period which the early stages of some mass campaigns normally cover. It has therefore been found to be an essential prerequisite for certain campaigns that a parallel schedule for the development of the basic health services should be drawn up. This is the reasoning behind the “pre-eradication programme”, recently recommended to and accepted by WHO in respect of malaria. References to this type of programme may be found in the eighth and ninth reports of the WHO Expert Committee on Malaria,¹ and in a recent statement of the Director-General to the WHO Executive Board at its thirty-first session.²

Pre-eradication programmes have been started in several countries, along the lines recommended by WHO—namely, the harmonious development of the two essential components: the basic health services, particularly at the peripheral and intermediate echelons (health infrastructure), and the national malaria service. It is especially important that the peripheral health services should be so designed that from the outset they may perform polyvalent functions, however rudimentary, rather than serve as mere malaria posts. Such functions will include simple

procedures for detecting and preventing communicable diseases, standardized treatment of other common important diseases of importance, simple preventive activities in maternal and child health and environmental sanitation, and elementary health education.

It is, of course, too early to assess the potential value of pre-eradication programmes. By way of illustration, Annex 3 contains a summary account of one such programme that is being carried out in Togo, but it is difficult to judge whether a similar pattern would or would not be suited to other campaigns. The whole problem merits careful consideration from a theoretical point of view, as well as an objective field analysis of all its facets. This is yet another item in connexion with which WHO could stimulate and sponsor useful applied research in public health practices.

MASS CAMPAIGNS ALREADY IN OPERATION

Significance of the problem

Many developing countries are facing difficulties because of the fact that their mass campaigns have already passed the date by which at least some of the remaining activities should have been taken over by the peripheral health services as part of their normal, routine work. Thus, the yaws campaign in Thailand described in Annex 4 illustrates the problems involved in the process of transferring responsibility for the residual operations of surveillance to the peripheral services, in spite of the fact that the process had been carefully planned in the early phases of the programme.

It is obviously essential that nothing should be done to impair the favourable results obtained by the mass campaigns, at the cost of enormous effort. Therefore, the conclusion is inescapable that until the basic health services are ready, it is essential to retain the special machinery, which is often of an elaborate and costly type. This in turn means that the basic services cannot be developed, since the limited funds have to be devoted, for the most part, to the maintenance of the specialized personnel. A financial dilemma is thus posed: there is need, on the one hand, to continue a high rate of expenditure for specialized surveillance, and, on the other hand, to increase the funds for developing an adequate system of peripheral health services, without which it would be unsafe to dispense with the specialized machinery.

The whole problem is closely connected with the real or potential risk of the resurgence of a given disease once the reservoir of infection has been reduced to a low level. It might be argued that where the chances of importation are negligible, the likelihood of an increased
transmission will be very slight, and that the prevalence may therefore be maintained at a low level, and even continue its downward trend without the adoption of specific measures. This is not, however, true of certain diseases. In malaria, for instance, the examples already cited indicate the extensive risk of resurgence as shown by the rapid accumulation of cases originating in the reactivation of an indigenous residual focus or in an imported case. Where other diseases are concerned, further study is necessary, since little is known of their epidemiological behaviour in relation to such variables as prevalence levels, population habits, environmental conditions, etc.

This range of questions, recently described as the "epidemiological problems of disappearing diseases", has both an academic interest and many practical implications. It deserves consideration by WHO as a subject suitable for field investigations designed to determine the real epidemiological basis of the minimum requirements for surveillance of a given disease compatible with the prevention of its resurgence. Parallel aims of the investigations should be to provide better tools for evaluation, to identify the groups of population in which surveillance can be most productive, and to seek better and simpler screening procedures.

*The case for preliminary trials*

Experience indicates that the transfer of responsibilities from the specialized staff of mass campaigns to the general health services cannot be carried out abruptly, even if the latter have reached a satisfactory degree of efficiency. The process must evolve gradually and be accomplished not so much through the medium of regulations as, essentially, through the reorientation of existing staff, careful retraining at every level, and a readjustment of the habits and attitudes of all health workers. There would therefore be advantage in starting with the formulation of procedures for the transfer of responsibilities and the testing of such procedures in one or two well-defined geographical regions. The detailed experience obtained in these field trials can then be applied as the process is extended to other areas and eventually to the whole country. Among the items to be studied the following are worthy of mention:

(a) Staffing and other requirements of the peripheral health services in relation to the geographical distribution, size and density of the population, accessibility of inhabited areas, means of transport and related conditions. These requirements must also be analysed by reference to the cumulative effects on the workload of the number and type of activities to be taken over by the services on a given date or in successive stages.
(b) Scope for stimulating a higher productivity on the part of the existing services through a reorientation of the staff, the provision of more effective working elements and the elimination of certain functions which, though devoid of real importance, are still performed by force of tradition. A careful analysis of the latter point may result in a substantial improvement in the utilization of staff and resources in many places.

(c) On the basis of (a) and (b) above, assessment of the additional services required for the full coverage of the population. This is particularly important in ensuring that the peripheral health services can carry out surveillance or vigilance operations connected with eradication campaigns.

(d) Type and length of training required for each category of personnel, auxiliary, supervisory and directional. Special attention should be given to the last-named category—a point so often neglected since the training of “front line” health workers is not enough, unless similar efforts are made in the case of those at the higher levels, including the professionals. The retraining of staff already working in the existing general health services is equally essential.

(e) Formulation and testing of procedures for the direct guidance and supervision of auxiliaries working at the peripheral levels—a point of paramount importance. A careful study should be made of the need for, and the means of ensuring, supervision by specialized staff whose task it would be to supplement, rather than take the place of, the normal supervisory personnel of, the general health services, for whatever length of time might be indicated.

(f) Appraisal of the type of specialized units required at the central and regional echelons of the health organization for carrying out activities which, by reason of their complexity, are beyond the scope of the peripheral health services. The need for specialized teams equipped to act promptly in case of emergencies should also be weighed.

A study of this kind will yield a wealth of information that can later be used for other regions of the country, and even if its preparation takes time, it will, in the long run, prove economical, for it may help to obviate considerable difficulties.

What is said above applies, of course, to areas in which some structure of peripheral health services—albeit inadequate—already exists. There are, however, many areas in which such services are non-existent, the special field workers of the mass campaigns constituting almost the sole health resource available to the community. In all such cases, every effort should be made to transform the single-purpose staff into
polyvalent workers so that they may form a nucleus for the basic health services in the area. This approach has been or is being used in several countries. For instance, a pilot scheme is currently being carried out in one provincial region whereby it is expected to transform the provincial malariologist into the provincial health officer, and the malaria fields units into the peripheral health services of the entire province.

COMPLETION OF MASS CAMPAIGNS

The culmination of the process whereby a particular disease ceases to be the subject of the vertical approach of a mass campaign and becomes incorporated in the horizontal approach of the general health services has been variously termed: "integration of mass campaigns into general health services", "take-over of mass campaigns by the basic health services", and "completion of mass campaigns". The last of these terms—though none of them is exactly appropriate—is preferred in the present context.

"Completion of a mass campaign" might be interpreted as implying that the disease under attack has been stripped of importance—an assumption that often leads to its being relegated to the list of "forgotten" diseases. The further consequences that may ensue are faulty diagnosis and a failure to report an outbreak, combined with delays in the adoption of necessary measures—a common occurrence in countries where smallpox and malaria have not been prevalent for a number of years. The recrudescence of venereal diseases after the initial optimism which the availability of penicillin inspired, and the mounting prevalence of diphtheria due to a relaxation of routine immunization activities—following successful mass immunization campaigns—are also pertinent illustrations.

The terms "take-over of mass campaigns by the basic health services" and "integration of mass campaigns into the general health services", though widely used, may give the impression that the general health services are to assume a responsibility which was not theirs in the past and to take on personnel who did not previously form part of the normal structure of the health organization. Conversely, these terms may suggest that the health workers formerly assigned to specialized activities are to be moved to a completely new environment. These considerations—perhaps superfluous, at first glance—have a bearing on staff morale. Every effort should be made to impress upon both the staff of former mass campaigns and the staff of the general health services that the "taking over" and "integration" are no more than the culmination of a long-term process. By the same token, it would be of great psychological value to avoid certain designations, too fre-
quently used in the past, such as "malaria personnel", "yaws workers" and "leprosy supervisors"; equally, the term "health workers" should not be limited to those engaged in polyvalent activities. All are health workers having a common purpose, the differences in the individual tasks being due solely to the necessity of breaking down an extremely broad activity into its component elements.

The matters to be considered in this connexion may be discussed according to the levels of the health organization, as follows:

At the peripheral level. Long before any mass campaign reaches its late phases it is necessary to spell out the duties that the peripheral health services are to undertake gradually, to equip them with essential facilities, and to develop plans for the training of the auxiliaries.

In general, the role of the peripheral health services in epidemiological surveillance and vigilance consists in keeping a continuing watch for cases of the particular disease, in the application of simple measures, and in the prompt alerting of higher levels at any moment when the situation proves to be beyond the control of the services. Apart from the provision of elementary facilities, arrangements must be made for the continuous training and retraining of auxiliaries in such matters as standard techniques for the identification of cases, methods of treatment and follow-up, and contact tracing. Particular attention should be given to the surveillance of population groups of especial importance in relation to the epidemiological characteristics of the disease in the area. Above all, the auxiliaries must be made aware of their limitations, so that they appreciate what they cannot and should not do, and when they should seek guidance from a higher level.

It is imperative that the training of auxiliaries in the peripheral health services should be supplemented by adequate machinery for direct supervision. To this end, it may be advisable, during the early phases (of the process of completion), to retain some of the specialized personnel of the mass campaign as special supervisors entrusted with the task of reviewing the efficiency and interest of the general health workers in the problem at issue, advising the competent officials of any defects, and suggesting corrective measures. Any such arrangement would be of limited duration, pending the transfer of responsibility to the normal supervisory mechanism of the general health services.

The process of completion must continue until the conviction is instilled that the particular disease is a matter of concern to all health workers at every level. The aim should be to reach the point where the handling of a case of malaria, yaws, or smallpox is viewed as engaging the responsibility of the general health services to the same degree as the provision of medical or prenatal care.
At the regional level. The steps to be taken at the regional level for the completion of mass campaigns should generally present fewer difficulties. The merger of functional and administrative activities normally includes the establishment within the structural organization of a nucleus of specialized personnel with two main functions: (a) to supervise the peripheral services up to the moment when the normal supervisory staff can take over the task; and (b) to apply whatever special measures cannot be delegated to the peripheral health services, for example, special epidemiological investigations and the direct execution of activities requiring a particular skill.

These specialized units at the regional level are indispensable in some, though not all, countries on account of the vastness of the territory, the difficulties of communication, the size of the population and other factors. In the case of a large country the concentration of specialized skill at the central level may hamper the prompt adoption of necessary measures.

As already indicated, the specialized staff at the regional level should be considered an integral part of the normal structure of the regional health organization and be subject to the same authority, that of the regional health officer.

At the central level. The culmination of the processes leading to the merging of the horizontal and vertical approaches likewise affects the structural arrangement at the central level of the national health organization. At this level also the maintenance of an efficient, though somewhat smaller, group of highly skilled specialized personnel is clearly warranted. Because of the experience gained during the mass campaign this group will be of great value, not only for the particular problem at hand, but for other similar programmes, by providing general direction and guidance to the lower levels, and by sustaining interest in the specific problem both within the health organization and in outside circles. The risk of "forgotten" diseases arises most of all in areas where a constant watch is needed to prevent the reintroduction of infection, or at least to obviate the recurrence of transmission if importation occurs. The need for a rapid mobilization of resources to cope with any such situation is ample justification for keeping a specialized unit in the national health organization.

The retraining and utilization of staff of former mass campaigns

It is often claimed that the completion of a mass campaign may entail the risk of disbanding a group of valuable health workers who have performed their duties efficiently and whose training has represented a considerable effort. Such a contingency, however, need never
arise if remedial action is not deferred until the last moment. In fact, there are probably few, if any, instances in which a country has failed to find a way of keeping this type of personnel in health work.

Thus, it has often been found possible to transfer staff engaged in a particular mass campaign to other specialized activities related thereto—an arrangement necessitating little additional training. This has been done in Venezuela, where almost all health workers in malaria are now being used in activities such as rodent, fly and Chagas’ disease control.

Elsewhere, the specialized personnel have been assimilated, after suitable training, as permanent members of the basic health services. In the USSR, for instance, a network of special malaria posts was established in 1934, and comprised some 2000 posts by 1952. With the decline in the prevalence of the disease, the posts were closed down in 1964, their detection activities being entrusted to the sanepids, which also absorbed the staff. At present, malaria vigilance is the responsibility of the latter centres, supported in the event of an outbreak by special teams. Former malarialogists now work as parasitologists throughout the health services. There is, however, a nucleus of five or six malarialogists at the central level, working at the Institute of Parasitology and Tropical Medicine of the USSR Academy of Medical Sciences.
CONCLUSIONS

The present document has attempted to review certain aspects of the relationship between the health activities commonly known as mass campaigns and the general health services. As the review has of necessity been somewhat superficial, the observations that are offered below are likewise of a preliminary nature.

It is necessary to stress the complexity of the subject. The relationship between general health services and mass campaigns at any given time or place is governed not only by a variety of technical aspects, but by a number of closely interrelated factors, including many that are remote from strict technical considerations. Moreover, the relationship transcends the boundaries of public health, since a number of mass campaigns are intimately connected with, and dependent on, the parallel development of programmes in education, agriculture, engineering, social reform and similar fields.

The problems encountered throughout the world vary so greatly that it would not be possible to suggest any uniform solutions, however sound they might be in theory. Each situation has to be studied on its own merits, and with due regard to the factors outlined in preceding pages. Accordingly, in lieu of specific recommendations, this paper has sought to bring out certain points of outstanding importance, some of which are summarized below.

(a) Although the question under review is not new, and certainly not confined to the field of public health, it has become a matter of growing concern during the past two decades. In fact, the advent of powerful weapons such as residual insecticides, improved immunizing products, and antibiotics and sulfonamides of prolonged action has opened the way to a fuller control, and in some cases, to the eventual eradication of, the major communicable diseases even in the most remote rural areas. Countries and international agencies have thus been encouraged to apply these tools on a massive basis in the hope of solving expedi-
tiously the most pressing health problems of the population. Furthermore, it is likely that the use of mass campaigns for a wide range of health problems will be stimulated as improved technical tools and better operational procedures result from applied research already under way. In consequence the lasting control of important diseases such as bilharziasis, onchocerciasis and trypanosomiasis may reasonably be anticipated as a practical possibility.

(b) Although optimism is justified in the light of these impressive results, already achieved or in prospect, it does not by any means follow that the mass campaign approach can by itself provide a solution to all health problems. Undoubtedly, mass campaigns are useful, indeed indispensable, in breaking the vicious circle of excessive sickness, low productivity and poverty which hinders the improvement of living conditions in most developing countries. By that token, such countries are justified, when drawing up national health plans, in initially devoting a substantial part of the available resources to mass campaigns against certain communicable diseases. At the same time they should not forget that mass campaigns are temporary expedients within a long-range pattern of health development, and that there is need to establish with the least possible delay an organized scheme of general health services which, though not yielding spectacular results, form an essential component of the permanent public services of the community. Furthermore, the role of the general health services is a valuable one at every stage of a mass campaign; it becomes indispensable as the campaign reached the late stage, when the use of a single-purpose machinery to maintain the benefits achieved becomes too costly.

(c) Unquestionably, in most developing countries, the conduct of mass campaigns and the establishment or improvement of general health services must go hand in hand for many years towards the ultimate goal of a unified health programme. An essential prerequisite is that all health workers should be convinced that the two approaches are not antagonistic but complementary, for it is not possible to achieve a harmonious relationship of general health services to mass campaigns unless the proper psychological attitude is fostered in every sector of the health organization.

(d) The progressive convergence and ultimate merging of the two approaches will depend on a number of factors. Thus, while the need for integration is accepted generally, there is likewise an awareness of the obstacles to its achievement. The concept is easily stated and understood, less easy to carry into effect. Indeed, general health services and mass campaigns differ in so many details—methods of
work, type of personnel required, timing—that it is difficult to coordinate their development as closely as is desirable.

(e) Experience to date confirms that the building up of a system of general health services is a lengthy process, far exceeding in duration the early stage of a short-term mass campaign. This has caused serious difficulties, inasmuch as the services (in particular at the peripheral level) are not qualified for the duties demanded of them at the late stage of a campaign and a fortiori still less so at the early stage. It is clearly necessary to seek rational solutions to these problems, together with the means of averting similar difficulties in the future.

(f) A scheme of basic health services, not merely to support mass campaigns but to provide at least a minimum of preventive and curative care to the entire population, has been advocated by WHO as an essential element in the accelerated programme for economic and social development. But the planning of such a scheme must be based realistically on a careful assessment of local resources, both human and financial, designed to ensure the most productive use. A too ambitious work programme results in long delays and is on that account to be avoided. For instance, systems based on health units comprising a medical officer and fully trained paramedical personnel for a population of 50,000 are simply not attainable in those places where basic health services are most urgently needed, and where the exiguous number of professionals cannot be diverted from hospital tasks for which their special skills are indispensable.

For many years to come, it will be necessary to rely, for the staffing of the peripheral health services, solely on low-grade auxiliaries, often located at distant places where supervision by professionals—even if they are available—is virtually impossible. On the other hand, to leave the auxiliaries in sole control would be to doom the entire scheme to failure. To resolve this dilemma, it might be advisable, as a compromise, to make use of non-professional field supervisors who would perform for the general health services a function similar to that of the special field supervisors in relation to the lower staff of mass campaigns.

Probably the most important factor in the development of basic health services is the reorientation of the existing staff and the establishment of training facilities for new personnel. In this area also, what is essential and feasible must be determined realistically. The inclusion in the curriculum of superfluous theoretical instruction would spell delay in the production of badly needed manpower. Reference may be made to a report submitted by the Executive Board to the Sixteenth World Health Assembly,1 in which the whole matter is reviewed.

However elementary the scheme may be, the participation of the basic health services in mass campaigns, particularly at the peripheral level, must be regarded as a part of their duties and not as mere collaboration, and it should be evaluated and supervised in that light. The minimum technical and operational requirements of the campaign must be taken into account, particularly with regard to the even coverage of the population. Accordingly, the scheme should aim at the provision of minimum health care to an entire area rather than at the concentration of services of a higher standard among limited segments of the population.

Every effort should be made to develop a spirit of team-work between the staff of mass campaigns and that of general health services from the outset and to impart this spirit, by the power of example, to every level of the health organization. Health workers should be convinced that there exists only one objective for all alike, and that differences in functions merely result from the necessary division of labour common to any large enterprise.

(g) The methods of achieving the indispensable association between general health services and mass campaigns cannot be reduced to any uniform pattern. Subject to this reservation, the present paper has reviewed some of the alternatives that might be used in countries which, though lacking an adequate minimum level of basic health services, need to start mass campaigns. One of these alternatives, the sequential approach, has been recommended and partially implemented in connexion with yaws campaigns. Another, the pre-eradication programme, more recently advocated as the indispensable pre-planning step in future malaria eradication programmes, is in operation in several places. While both alternatives offer great possibilities, there is need for further investigation before definite conclusions can be drawn regarding their practical value.

(h) In areas where an adequate network of general health services is lacking, and where mass campaigns have reached the midpoint or are nearing completion, the problem is one of urgency. But this fact should not be held to warrant precipitate action, which might jeopardize the benefits gained in the campaigns. The transfer of specialized functions to the general health services must be preceded by careful studies, preferably in the form of pilot trials. Such trials would serve: to identify the probable difficulties; to estimate the number and types of staff needed by the general health services at each level, as well as the additional facilities required for the coverage of the population; to evaluate the training programmes and test the related operational procedures. Only when this had been done, would it be reasonable
to start the gradual transfer of responsibilities to the general health services and reassign the specialized staff.

(i) It is clearly impossible to offer suggestions, in quantitative terms, regarding the needs of the general health services in the matter of manpower, financing, equipment, etc. So variable are the factors that come into play—local conditions; the requirements for a given mass campaign; the stage of the country’s general development—that any arithmetical calculation would be purely conjectural. Delicate practical implications enter into this important question, to which only direct experience in the area concerned, combined with a study of all relevant factors, can supply an authoritative answer.

(j) Finally, the present review has shown that there is still a great lack of information on this complex subject. Reference has been made at several points to the importance of undertaking field inquiries in order to clarify a number of questions. There are, it is submitted, challenging opportunities for WHO to stimulate useful operational research.
Annex 1

RECOMMENDATIONS FOR A DISTRICT TUBERCULOSIS CONTROL PROGRAMME IN INDIA

Explanatory note. The National Tuberculosis Programme of India is now being developed on the strength of a body of knowledge obtained from important studies carried out in that country. The work on domiciliary treatment at the Tuberculosis Chemotherapy Centre of Madras paved the way for an expanded control programme with fewer institutional facilities than were previously necessary—this being subject to the proviso that there is an adequate organization equipped to deliver the drugs regularly to the patients at home and check the regularity of the drug-taking. Furthermore, a national tuberculosis survey was made between 1955 and 1958. The National Tuberculosis Institute at Bangalore carried out epidemiological enquiries regarding the nature and extent of the problem and conducted field pilot projects in urban and rural areas to find the methods best suited to India’s conditions. It is now developing an extensive training scheme for the specialized staff of several categories, and is to provide technical direction for the whole programme.

With this background, the Government has been able to establish the guiding principles for a nation-wide tuberculosis control programme adapted to the local circumstances. The Annual Report of the Director-General of WHO for 1962 summarizes the situation as follows: “In India... the Central Government has in this way evolved the operational details of a district tuberculosis programme and has recommended them as the basis of a programme to be adopted in all the 380 districts of the country. The first ten teams... have been trained to become the key organizers of tuberculosis programmes in ten districts, covering an aggregate population of about twelve million. In future, it is proposed to train an average of forty such teams annually, so that the whole country may be covered by 1970. Eleven WHO staff members are at present helping with this scheme.”

The following is a condensation of the recommendations issued by the Ministry of Health of India, which appeared as an annex to a paper for the technical discussions on "Case-finding and domiciliary treatment in tuberculosis control" at the sixteenth session of the WHO Regional Committee for South-East Asia.1

1. Introduction. The district tuberculosis control programme is designed for the control of tuberculosis in the community, as opposed to the mere care of the individual patient. In other words, the emphasis is on a public health approach as against a purely clinical one.

The recommendations are mainly based on the results and experience gained at the National Tuberculosis Institute, Bangalore. The limited resources available have led to the working out of a scheme by which the employment of specialized staff is restricted to the minimum, and use is made of all public health personnel and of other organizations available in a district. Minor changes in the pattern of work may be found necessary in course of time as a result of further experience.

2. Factors and figures about the district. The outline is drawn up for an average Indian district, with a population of about 1,200,000, of whom at least 1,000,000 live in 2,000 villages.

The National Sample Survey has shown that the proportion of radiologically active cases and of bacteriologically confirmed cases is, on the average, 1.8% and 0.4% respectively. Based on these estimates the case-load in a district may be reckoned to be 20,000 radiologically active cases, 5,000 of which are likely to be confirmed bacteriologically at any given point of time. Of these, about 80% are to be found in the villages; another 5%-10% in district headquarters towns, and the rest in taluk headquarters towns. The rate at which new cases occur is not known, but the yearly incidence may be estimated at about one-fifth of the total number existing at a given time. This would mean that 4,000 new cases occur every year, 1,000 of which will be confirmed bacteriologically.

3. The health service facilities available in the district. Most districts are in a fairly advanced stage from the point of view of National Community Development Extension Schemes; in 1961 there were eight to ten such development blocks in most districts. This number is to be doubled during the Third Five-Year Plan, thus bringing every district to full development by 1965. It may be estimated, therefore, that at present there are ten primary health centers per district and that this number will increase to the ultimate target of twenty within the next few years. At present, districts are served by an average of ten taluk

or subdivisional dispensaries and hospitals and by a headquarters hospital; some hospitals have a limited number of tuberculosis beds attached. Taking both rural dispensaries and health centres into account, there are normally over thirty units which have a qualified medical officer.

The aim is to bring tuberculosis services within the reach of the entire community and also to help in developing the general health services. To plan, co-ordinate and supervise the programme, a "district tuberculosis centre" is established in addition to the general health facilities, existing or being developed. The staff of such a centre will consist of one district tuberculosis officer, one medical officer, two treatment organizers, one X-ray technician, one laboratory technician and one statistical assistant, plus seven supporting clerical and ancillary employees. In addition, there will be a BCG team composed of a team leader, seven technicians and one administrative employee. Building accommodation will have to be provided. Standard equipment and supplies will be supplied by the central government, the state or UNICEF, according to specified plans.

4. Treatment. The control of tuberculosis must aim at the gradual reduction of the number of infectious cases in the community. Treatment must therefore aim at the cure of the highest possible proportion of the existing infectious cases and at preventing non-infectious cases from becoming infectious. The first priority is to cater for patients seeking medical relief on their own initiative. Previous sociological studies have indicated that one-third of the radiologically active cases take such action under pressure of symptoms; a further one-third are likely to be sufficiently motivated by their symptoms to seek advice and when facilities are brought within reasonably easy reach. This means that in any district over 3500 bacteriologically active cases, plus two to three times as many X-ray diagnosed cases, can be dealt with immediately.

The large size of the patient population makes it necessary to arrange for self-administration of the drug. This has two major implications: (a) provision for a constant supply of the drug by the health services; and (b) regular intake of the drug by the patients. The supply of drugs is the Government's responsibility. The allocation of drugs to the existing health centres should be the responsibility of the district medical officer, on the advice of the district tuberculosis officer, and their distribution to the patients should be the responsibility of all existing health personnel. The regular intake of the drug by the patient, which means the collection and consumption of the drug over one full year, is the most important aspect of the whole programme and can be achieved only
if the general health and medical staff, guided by the district centre, supervise the distribution and consumption and enlist the co-operation of existing non-medical agencies in persuading defaulters.

It should be pointed out that even in a moderately efficient district programme, 1500 sputum-positive cases and perhaps 2500 X-ray cases would have to be treated every year.

5. *Diagnosis.* The implication of the foregoing is that the health services, whether specialized or general, must be able to cope with this load, as a minimum.

Patients may report on their own initiative to the district tuberculosis centre or may be referred by peripheral units. The methods used include the tuberculin test, X-ray and sputum examinations, often supplemented by clinical examination. With such diagnostic means, 50% of the infectious case-load in a district headquarters town can be diagnosed within a few months from the start of operations, in addition to a small fraction of cases belonging to the periphery.

The primary health centres and *taluk* hospitals ordinarily are provided with a microscope; others that are found suitable for dealing with the treatment of tuberculosis may receive one within the framework of the programme. This means that the use of microscopes for diagnosis of tuberculosis can rapidly be expanded to cover the entire district area.

The primary health centre is the most promising of the services, as it has its own ramifications in the villages in the form of subcentres, weekly clinics, rural dispensaries and so on, where sputum can be collected and smears made for further processing at the primary health centre by staff specially trained. When 10 *taluk* hospitals and 10 primary health centres, with their 50 subcentres of all kinds, are all contributing to the bacteriological diagnosis of tuberculosis, one may expect that all the patients who are likely to take action spontaneously can be dealt with on a continuous basis. This has been made possible by bringing a diagnostic facility (sputum collection or examination centre) to within a few miles of every village.

As the majority of such cases are diagnosed, an increasing proportion of those with symptoms will also be found not to be bacteriologically positive. This necessitates the introduction of referral procedures, as a further stage of the programme. Where there is only one X-ray plant at the district tuberculosis centre, such referral must naturally be made to that centre. Where other X-ray facilities exist they should also be used; and when a transportable X-ray unit can be made available, the patients can be referred to the *taluk* hospitals visited by the unit. This will help to make a diagnostic service available in all areas.
Where such referral facilities are not available, sputum-negative cases can be considered clinically as genuine cases of tuberculosis, and admission to treatment should be made on this basis alone (especially in the case of indigent persons who cannot afford to travel to a distant referral centre).

6. **BCG vaccination.** The positing of a BCG team achieves the declared objective of integrating the preventive and curative aspects of tuberculosis control and brings about a certain amount of administrative integration. The policies prevailing in respect of the mass BCG campaigns conducted in the First and Second Plans remain basically unaltered. The BCG teams will operate with a view to maximum coverage of the entire district, for which a systematic house-to-house registration is done, tests being given to all persons under 40 years of age, and vaccination to all who have reactions of 9 mm or less. The team also performs the useful additional functions of questioning the adults as to the possible presence of symptoms and of referring them to the nearest diagnostic centre.

7. **The development of the programme.** This will depend on the services and facilities already available when the district tuberculosis officer and his team take up their work. His first act must invariably be to give his senior health and medical officers a comprehensive picture of the programme. In close association with them, he then draws a plan for implementing the programme in the district. If a clinic is already functioning at a district headquarters with X-ray and laboratory facilities, he reviews its work and makes such provisional improvements as will make it suitable as a referral centre. Thereafter—and in other cases where such a clinic does not exist—he conducts a survey of all available general health services with the object of organizing both the case-finding of sputum-positive cases and the drug distribution and follow-up of defaulters.

The survey should consist of visits to each *taluk* headquarters hospital, primary health centre, and dispensary, and of discussions with the officers in charge of these units. The programme should always be presented as the normal responsibility of the general health services, not as the sole responsibility of specialized staff. Case-finding treatment and methods must be fully explained, with special emphasis on how to ensure continuous drug-taking by patients over a period of one year. The assistance of community development services, *panchayats*, teachers, etc. in this work should also be invited.

Thereafter, the district tuberculosis officer prepares a plan for the gradual extension of the tuberculosis programme over a period of, in most cases, one to two years. Usually, the major part in organizing
the clinical work, the central laboratory, the X-ray service and the district case-register can be left to his medical officer and statistical assistant. However, if he does not have such personnel at the outset, he may have to spend two days in every week in supervising and directing the building up of these central functions. In any case, most of his time will thereafter be spent in travelling and staying one or two days, first, at the most promising primary health centres and taluk headquarters hospitals and, later, at the less promising ones. He should try to establish at least a skeleton treatment organization in all taluks within six months, and to have at about the same time a number of centres with a high intensity of case-finding. In certain circumstances, he may start by developing one or two taluks as demonstration areas. However, in so doing he should not lose sight of the goal of having a satisfactory service over the whole district within a target period of two years.

* * *

The foregoing description shows how a specialized health activity can be developed from the outset as an integral part of the work of the basic health services. In this connexion, two points are worthy of emphasis: (a) the recommendations envisage the use of the minimum amount of specialized personnel compatible with technical efficiency and the supervisory requirements of the central tuberculosis programme; and (b) the bringing together of specialized and non-specialized staff from the outset will make possible the development of a single operational programme able to expand concurrently with the basic health services and eventually to cover a high proportion of the population.
Annex 2

THE TRACHOMA CONTROL PROGRAMME IN TAIWAN

The programme started in 1954, with WHO and UNICEF collaboration, after a preliminary trial lasting 18 months. Its objectives were: 
(a) to reduce disease prevalence to a level where it is no longer an important public health problem; and (b) to prevent the disabling complications and sequelae of trachoma.

Until 1959, the project consisted essentially of: 
(a) case-finding among new entrants in primary schools throughout the country, with collective treatment of all those having trachoma and/or conjunctivitis, follow-up examinations being carried out at the beginning of the second, third and final years, with re-treatment of all children showing active signs of either disease; and (b) “blanket treatment”, without case-finding or follow-up, of family contacts in areas where school surveys indicated a prevalence of 50% or more.

The programme had been energetically pursued during the first six years, 1 600 000 schoolchildren having been treated and 960 000 family contacts having received blanket treatment. The partial appraisals until October 1959 suggested that, although much good had resulted from the campaign, the results had fallen short of expectations. It was believed that this was the outcome of initial planning without sufficient knowledge of the local epidemiology of the disease, and of the lack of well-controlled trials and facilities for a running evaluation.

At the end of 1959, it was recommended that in a programme of such magnitude the technical aspects and policy-making, on the one hand, and the routine operations, on the other, should be clearly distinguished and dealt with separately. A project of research and evaluation was therefore proposed, but in order not to disturb unnecessarily the mass campaign, which was functioning well from an administrative point of view, it was recommended that the project should be designed and conducted as a parallel, but separate, activity.

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1 Abstracts from unpublished WHO reports.
For the mass campaign itself no drastic changes were proposed; the methods and treatment schedules were to be continued in 1960 until more reliable data became available from the research and evaluation project. On the basis of past experience, it was estimated that more than 30% of the 360,000 new entrants to primary school in the school year 1959/60 should be treated. In addition, some 50,000 children in second grades, 25,000 in the third grade and 50,000 in the final grade would need re-treatment. This made a total of some 250,000 children to be treated, in addition to an estimated target figure of 300,000 family contacts.

The research and evaluation project, composed of an epidemiological survey and clinical trials, had produced some results which were useful at the beginning of 1962 for the replanning of the mass campaign. Among the salient findings of the former were: (a) local prevalence rates for all cases, active and treated, varied between 22.7% and 68.0%, with an over-all rate of 41.5%; (b) the relative gravity of trachoma was much higher than previously believed; (c) the highest prevalence of active trachoma was consistently found in the 15-20-year age-group, the decline beyond that year being very gradual, and no sex differences being noted even in individual age-groups; (d) trachoma was not a "family disease" in Taiwan, many households having only one member with the disease, and crowding not in itself appearing as an important factor. The wide age-distribution of active trachoma and the relatively late age (15-20 years) of peak prevalence explain the high rate of reinfection found after treatment at primary school age, and the failure of school treatment, as a single measure, in controlling the disease.

The clinical trials, showed, on the other hand, that the "intermittent" schedule of treatment is at least as effective as the more costly "continuous" one; and that the treatment schedules previously used both for schools and for "blanket treatment" of family contacts were inadequate.

On the basis of these and other findings, it was recommended that the mass campaign itself should be revised along the lines indicated below in summary.

The objectives of the campaign would be: (a) to reduce the prevalence of active trachoma in areas of relatively low endemicity to a level of less than 4% in the age-group now showing the highest prevalence; (b) to reduce progressively the prevalence and incidence of trachoma in areas of moderate and high endemicity to a level at which the disease is no longer a public health problem; and (c) to prevent disabling complications and sequelae.

The methods of achieving these objectives would be based on the classification of community groups in three categories, according to the
prevalence of active trachoma found during the epidemiological survey: 
(a) category I, low prevalence, less than 16.5%, comprising one rural and 
five urban areas with a population of about 2.2 million and about 400,000 
households; (b) category II, moderate prevalence, above 16.5% but 
less than 40%, including 28 rural and urban areas with a population of 
7 million and about 1.2 million households; and (c) category III, high 
prevalence, 40% or more, comprising one urban and three rural areas, 
with a population of 861,000 and about 127,000 households. For the 
first two categories, an intensive programme of case-finding and treatment 
of all active cases should be followed and treatment carried out 
on a selective individual basis except where two or more active cases 
were found in the same household, in which event all household members 
should be treated. Mass treatment should be instituted in category III 
communities.

Each of the three categories would be subdivided into three groups 
according to geographical and administrative convenience. Treatment 
operations would be commenced in one group of each category in 
successive years starting in 1962. Selected communities in each category 
and group would be left untreated so as to serve as controls pending 
the completion of a systematic evaluation of the programme in 1967. 
Save for these controls, all identifiable cases of active trachoma should 
have been treated by early 1965.

After the completion of the second yearly course of mass treatment, 
category III communities would be transferred successively to categories 
II and I, subject to systematic case-finding and selective treatment. 
In categories I and II, after the initial two years of intensive case-finding 
and treatment, a maintenance phase would be instituted, consisting of: 
(a) annual examinations of organized groups, e.g., primary, middle 
and high school children, fishermen, and factory workers, (b) routine 
eye examination of all persons attending hospitals and health establish-
ments; (c) treatment of all cases found; and (d) a programme of health 
education in the schools.

The standard schedule of treatment would consist of two courses of 
intermittent treatment, each course consisting of the local application 
of antibiotic ointment to the eyes twice daily on five consecutive days 
—this five-day cycle to be repeated every four weeks, to a total of six 
cycles. The second course should commence during the same month 
of the following year.

In addition, an intensive programme of health education and pro-
paganda would be instituted from the beginning. Training and refresher 
courses for medical and auxiliary personnel would also be continued 
with due regard to the new orientation of the campaign.
In 1967 a technical evaluation of the results of the project would be carried out, based on the systematic clinical examination of a random sample of the population, with the same criteria as those adopted for the epidemiological survey of 1960/61. In the meantime, a running evaluation of the administrative functioning of the project would be conducted.

* * *

The mass campaign has been planned around the existing network of general health services in order to ensure continuity in the maintenance phase. Additional auxiliary personnel will be temporarily employed as required to supervise treatment operations.

At the central level, the health administration has a Trachoma Centre, with permanent professional staff and an advisory committee in charge of the general direction and evaluation of the campaign. At the regional level, each of the 22 Health Bureaux has a Trachoma Officer responsible for the supervision of the campaign. The local level is represented by 370 township or district health stations, staffed with one or two doctors, two to five nurses and one to four other workers; and by 185 health substations situated in remote villages and functioning as field dispensaries under the direct control of the health stations. A number of community workers will be attached to these institutions for the specific purpose of organizing and supervising treatment, which is to be carried out mostly by teachers at schools and by the people themselves in the mass treatment areas. (By 1962, it was estimated that these treatment supervisors numbered 2166.)

* * *

The trachoma control programme in China (Taiwan) is presented as an example of the need to obtain the best possible knowledge of the local epidemiological behaviour of a disease before launching large-scale operations for its control or eradication. The shortcomings observed were therefore mainly due to the technical inadequacy of the approach used and not to the lack of participation of the basic health services or to the insufficiency of operational procedures.
Annex 3

THE DEVELOPMENT OF BASIC HEALTH SERVICES WITHIN
THE PRE-ERADICATION PROGRAMME OF MALARIA
IN TOGO

The pre-eradication programme has two main correlated elements: (a) the adequate organization of the national malaria service; and (b) the development of the general health services, particularly in the rural areas (health infrastructure), up to the minimum level that will enable them to carry on, among other duties, those imposed by the future malaria eradication programme, particularly at the consolidation and maintenance phases. WHO is collaborating in the undertaking.

The present summary describes certain aspects related to the general health services (hereinafter called "services").

Inventory and appraisal

Naturally the first step in the programme has been to ascertain the situation of the existing services in the country in order to have a basis for estimating the needs, and to appraise the existing and foreseeable resources. The main findings of the survey are summarized below.

Togo's health organization has three clearly distinct levels, which seem to be well adapted to the general administrative structure of the country. There is a Ministry of Health (central level), responsible for the general direction of health activities. At the intermediate (provincial) level there are 15 subdivisions sanitaires, the limits of which usually coincide with the primary political divisions (circonscriptions), each with a medical officer responsible for activities carried out within the corresponding area. At the local level, there are a number of fixed establishments: 146 dispensaries, 14 medical centres (out-patient clinics with hospitalization) and two large hospitals, one in the capital city (Lomé), the other in the second largest city (Sokodé). In total, these units have 31 medical officers (14 of whom are in Lomé), 37 agents techniques, 342 auxiliary nurses and 97 midwives or auxiliary midwives,
in addition to a number of ancillary staff. There are also seven mobile
teams engaged in activities related to the control of certain communicable
diseases, such as yaws, trypanosomiasis, and epidemic emergencies.

The health resources are not evenly distributed, as the following
estimates for the four natural regions of the country indicate:

<table>
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<tr>
<th>Region</th>
<th>Population per one doctor</th>
<th>One health establishment per km²</th>
<th>Population density</th>
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<tbody>
<tr>
<td>Savanes</td>
<td>80 000</td>
<td>440</td>
<td>10 400</td>
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<tr>
<td>Centrale</td>
<td>56 000</td>
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<td>7 700</td>
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<td>Plateaux</td>
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<td>Maritimes</td>
<td>31 000</td>
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The variation in population density is far sharper when measured
by administrative districts, ranging from 485 in the Lomé district to
12-16 in several interior districts.

Most of the dispensaries are staffed by one auxiliary nurse (male),
and in some an auxiliary midwife is attached. The medical officers,
agents techniques and midwives work almost exclusively in the
medical centres and hospitals, having little time for supervising the
work of the dispensaries. The latter units were studied with particular
care in view of their paramount importance in Togo, where, according
to the data collected, they are providing about four-fifths of the health
care. An objective analysis indicates that for many years to come the
dispensaries will be the practical element around which it would be
feasible to develop the system of rural health services. Likewise, as
the prospect of increasing the number of professional staff for health
work is slender, the country has to depend largely on auxiliary per-
sonnel.

On the basis of the survey’s findings, it is now possible to estimate
requirements for improving the existing services (in personnel, equip-
ment, buildings, etc.) and for creating the additional services indisp-
ensably required for a minimum programme of health care, including
support for the future malaria eradication programme. A realistic
assessment was necessary in order to reconcile the plans with the existing
and foreseeable resources of the country. Accordingly, the functions of
the services are envisaged as follows: limited medical care; simple tech-
niques for the detection and prevention of disease; elementary preventive
work in maternal and child health; environmental sanitation; and health
education. The activities should be simple, precisely defined and pre-
ferably standardized, and—as they are to be performed by auxiliaries—
carefully supervised. Within these limits, the malaria work should be
absorbed as part of the normal duties of the staff and receive the
attention it deserves as one of the highest health priorities.
Staggering of programme

It is clear that, in view of the limited resources, the development of the services, together with that of the malaria eradication programme, could not be undertaken at once on a country-wide basis. In consequence, the development of the two fundamental elements of pre-eradication has to be staggered, through closely interrelated arrangements.

Since the country is to be divided, for the purpose of malaria eradication, into three regions—the work to start in the southern region and then progress towards the north—the development of the services should follow a similar schedule. Likewise, the malaria training and demonstration area was included in the area chosen, with the same object in view, for the services.

As shown in the table opposite, a tentative country-wide plan for the correlated development of the two fundamental elements of the programme has been drawn up. If the plan is carried out, the services should be ready to take full responsibility for vigilance at successive two-year intervals starting in 1973. This is, of course, subject to any modifications resulting from unforeseen circumstances.

Preliminary details have been worked out for the southern region, composed of 6 of the 17 administrative districts in the country, with an area of 12,460 square kilometres and a population estimated at 708,000 in the middle of 1963. The population density thus amounts to an average of 57 per km², though varying from 12 to 485 according to district. The health establishments comprise the large hospital of Lomé, 7 medical centres and 59 dispensaries. There are 20 doctors, 27 agents techniques, 143 auxiliary nurses and 47 midwives or auxiliary midwives; of these, 14, 15, 48 and 12, respectively, are in Lomé. The establishments are unevenly distributed in relation to both the density of population and the area covered. The survey revealed that 16 new dispensaries were being built, not all of them where the need was greatest; and that a further 14 new dispensaries should be created to assure a minimum reasonable coverage of the population.

Main requisites for implementation

In trying to reach the proposed objectives, the programme must give careful attention to certain essential points, including the following:

(a) At the central level (Ministry), the establishment of a unit directly responsible for the planning and general direction of activities to be undertaken by the services, for obtaining funds for staff and working facilities (buildings, supplies, etc.), for developing standard
# Development of Antimalaria Activities in Relation to Those of the Public Health Services in Togo

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<td></td>
<td>AM</td>
<td>DM</td>
<td>DM</td>
<td>DC</td>
<td>DC</td>
<td>PP</td>
<td>AP1</td>
<td>AP2</td>
<td>AP3</td>
<td>AP4</td>
<td>CP</td>
<td>CP</td>
<td>CP</td>
<td>MP</td>
<td>MP</td>
<td>MP</td>
</tr>
<tr>
<td>Northern</td>
<td>HS</td>
<td>TP</td>
<td>TP</td>
<td>TP</td>
<td>TP</td>
<td>TP</td>
<td>TP</td>
<td>TP</td>
<td>CHS</td>
<td>CHS</td>
<td>CHS</td>
<td>CHS</td>
<td>CHS</td>
<td>CHS</td>
<td>CHS</td>
<td>CHS</td>
</tr>
<tr>
<td></td>
<td>AM</td>
<td>DM</td>
<td>DM</td>
<td>DM</td>
<td>DM</td>
<td>DC</td>
<td>DC</td>
<td>PP</td>
<td>AP1</td>
<td>AP2</td>
<td>AP3</td>
<td>AP4</td>
<td>CP</td>
<td>CP</td>
<td>CP</td>
<td>MP</td>
</tr>
</tbody>
</table>

| HS       | Public health services |
| TP       | Training of personnel |
| EB       | Equipment, buildings, transport, medical supplies, etc. |
| RP       | Recruitment of new personnel |
| CHS      | Continuation of general health activities after attainment of the requisite minimum level of development |
| AM       | Antimalaria activities |
| DC       | Demonstration courses and training |
| DM       | Diagnosis and treatment of malaria cases |
| PP       | Preparatory phase |
| AP       | Attack phase |
| CP       | Consolidation phase |
| MP       | Maintenance phase |
procedures for the recognition and treatment of common important diseases, for devising a simple reporting system, for assuring the training and retraining of personnel at all levels, and for maintaining liaison with other agencies concerned in the development of the rural areas of the country. (Steps have already been taken to meet this need.)

(b) At the intermediate level, the organization of a system of supervision, at present virtually non-existent. Because of the shortage of professional staff, this can only be achieved through a cadre of field supervisors, attached and responsible to the medical chief of the relevant health subdivision. The task of these supervisors will be to guide and control the auxiliaries working in the peripheral centres (one supervisor for every five centres, on the average).

(c) At the local level, the improvement of the existing dispensaries with a view to transforming them into health posts. For this, many factors should be considered—for instance: the proper adaptation of auxiliaries already in service, the provision of more effective drugs—though fewer in number—and the necessary minimum of equipment, and the improvement of the buildings which, however modest, should become models of cleanliness to the community. The posts should also be strengthened by the addition of at least one auxiliary health visitor to be assigned mainly to the "dynamic" work, namely, the periodic visiting of villages and homes for the detection and treatment of disease as appropriate, first aid, and elementary health education. Finally, the establishment of the minimum number of health posts necessary to provide elementary health care to people living in areas not at present covered.

(d) Training should receive the closest attention during the initial period and be continued for the whole duration of the programme. It should begin with the reorientation of the existing personnel and the formation of the first group of field supervisors and auxiliary health visitors mentioned above. Staff at the professional levels must be imbued with a deep sense of mission if the programme is to succeed. Plans for the preparation of personnel for the new services have to be developed generally, special attention being paid to the adaptation of the methods and content of the teaching at the existing school for nurses.

Plan of action

Based on the findings and the estimate of needs outlined above, a plan has been drawn up for the first stage of the programme, covering
the period 1963-1967. It is to be reviewed yearly for the purpose of evaluation and—where appropriate—modification in the light of experience. The activities planned include the following:

(a) Seminars (colloques) of one week's duration will be organized annually for all medical and related professionals of the country, to provide an opportunity for discussing important aspects of the programme and promoting understanding and co-operation. (The first of these seminars took place in August 1963 and met with an encouraging success.)

(b) The cadre of field supervisors for the health posts will be trained by agents techniques, selected on the basis of experience, qualifications and conduct. The programme for an intensive three-month course, followed by supervised practice in the field, has been prepared in outline. The Government has already taken steps to detach the first group, for training and assignment to the job in 1964.

(c) The retraining of auxiliaries serving in the existing dispensaries has begun. It consists of a two-month intensive course, mainly of a practical nature, specifically designed to provide up-to-date information, of which there is a serious lack, and impart an understanding of preventive procedures. This work has to be developed gradually so as not to leave all the dispensaries in a given area unattended at the same time. For that reason, the course has been divided into two stages of one month each.

(d) Recruiting and training of the auxiliary health visitors. A two-month course followed by supervised field practice has been planned, to start at the beginning of 1964.

(e) The reorientation of teaching at the School of Nurses is expected to begin with the forthcoming arrival of a WHO consultant.

(f) Revision and standardization of medical supplies for the health posts, with a view to replacing outdated drugs with modern medicaments. This is of particular importance as a means of achieving better results from the work of the posts and even of reducing the frequency of consultations for a single complaint. This task is already under way, although it is a slow process, for obvious reasons.

(g) Estimation of the minimum equipment needed by the medical centres and health posts, and of transport facilities for the staff.

(h) A standard architectural design has been developed for the new health posts. It has been kept as simple as possible in view of the shortage of local resources, though allowing for expansion when conditions so warrant. The estimated cost of each building is
CFAF 450,000, which can be reduced to CFAF 300,000 if the "self-help" support of the local population is obtained. One building has already been completed, and two more are now under construction.

As already explained, work during the five-year period will be mainly concentrated on the southern region, although some action will be taken in the rest of the country also, especially in connexion with the retraining of existing staff.

The personnel needs for the southern region have been estimated as follows: 19 field supervisors, 29 auxiliary nurses for new health posts, and 87 auxiliary health visitors; averaged over the five-year period these figures represent 4, 6 and 18, respectively, per year.

In addition, during the five-year period, there will be yearly courses for the retraining of the personnel at the existing dispensaries and medical centres. Likewise, 14 new buildings for health posts will be needed during that period.

If the plan is carried out, the southern region should have, by 1968, a network of 87 health posts and 7 medical centres (excluding the health establishments in Lomé city), distributed as follows:

<table>
<thead>
<tr>
<th>Subdivision</th>
<th>Health establishments</th>
<th>One health establishment per km²</th>
<th>Population density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anecho</td>
<td>20</td>
<td>71</td>
<td>12,000</td>
</tr>
<tr>
<td>Klouto</td>
<td>27</td>
<td>113</td>
<td>5,000</td>
</tr>
<tr>
<td>Tsévié</td>
<td>21</td>
<td>145</td>
<td>6,000</td>
</tr>
<tr>
<td>Tabligo</td>
<td>8</td>
<td>150</td>
<td>8,000</td>
</tr>
<tr>
<td>Nuoñia</td>
<td>12</td>
<td>254</td>
<td>5,000</td>
</tr>
<tr>
<td>Lomé</td>
<td>6</td>
<td>47</td>
<td>12,000</td>
</tr>
</tbody>
</table>

The average population to be served by each health establishment is calculated on the basis of the estimated 1967 population. The variations in the ratio among the subdivisions are mainly attributable to differences in population density.

While the above-mentioned action is being taken in the southern region, similar plans will be prepared for the other regions at the appropriate time, and these will in each case be closely co-ordinated with the plans for malaria eradication.

Final comment

Since malaria must unquestionably receive the highest priority, its eradication should be the object of the closest attention on the part of the health posts. Nevertheless the proposed health infrastructure is not intended to serve the needs of the malaria eradication programme exclusively. While planned along simple lines—it would not otherwise
be feasible—it is based on the principle of polyvalent health posts which, of necessity, must first direct their limited capacities to the most urgent health problems.

Once the work-load connected with the eradication programme has been reduced, the potentially polyvalent health posts, developed along the lines described, will be of great value for mass campaigns against other diseases and ultimately for the future general health services of the country.

ADDENDUM

THE HEALTH INFRASTRUCTURE IN TOGO:
TENTATIVE FINANCIAL ESTIMATES

Background

The survey carried out within the programme described in Annex 3 included an attempt at estimating the expenses relating to the creation of the minimum basic health services for the support of the future malaria eradication programme, as well as for the performance of other essential, if elementary functions of health care for the rural areas. The notes that follow are based on information collected between September and November 1962 by two WHO Consultants (Dr A. Geller and Dr C. L. Gonzalez) and from December 1963 onwards by Dr A. Geller, with the continuous support and collaboration of the health officers of Togo.

It must be emphasized that the health infrastructure envisaged is of very modest proportions, in keeping with the possibilities of the country. Accordingly, what is being proposed is a network of elementary institutions distributed as evenly as possible over the rural areas, rather than elaborate units for a smaller number of sectors of the country. It should also be pointed out that the estimates are necessarily rough estimates, and subject therefore to adjustment as more information becomes available.

The costing has been based on the situation prevailing at the time of the survey. For instance, salaries for new staff were calculated on the basis of the current scale, and other items on the basis of the market prices in Togo. In some cases these estimates are probably too high. For example, the building of a "health post" (the name to be given to the former "dispensary"), including housing for the auxiliary staff and a water-well, was estimated at CFAF 2 000 000 (about $US 3000), but more recent information indicates that a simple building alone could be constructed for about CFAF 450 000. Annual expenditure for drugs was estimated at CFAF 250 000 and miscellaneous expenses at CFAF 200 000 per health post. The latter item could probably be somewhat reduced.

These estimates refer exclusively to the "peripheral" organization, that is to say, to the health posts and the immediate field supervisors, to the exclusion of the higher echelons. In accordance with the current plans for the prospective malaria eradication programme, the country has been divided into the three regions prescribed for the staggering of the programme. For that reason, the survey gave special emphasis to the southern region, which is deemed to be first in order of implementation. As this latter point has been discussed in Annex 3, all regions are here assumed to be on an equal footing.
Basis for estimating needs

Two conflicting requirements—a complete coverage of all rural areas; the lowest possible level of expenditure—had to be reconciled. It was considered that in these circumstances the best approach would be to expand the radius of action of the health posts by imparting to them a “dynamic” character in addition to their traditional “static” character. In this way, it was believed that the expenses relating to physical installations could be reduced by an amount substantially exceeding the cost of adding an auxiliary health visitor to each post. This approach meant, of course, that the two basic staff members of the post (the auxiliary nurse and the auxiliary visitor) must be provided with transport facilities (bicycles). As the next step, it was necessary to analyse those posts (already established) the functions of which were to be expanded, and, on the basis of the analysis, to estimate the number of new health posts needed, as well as the number of posts which were so badly installed that it was essential to provide for a complete rebuilding of accommodations.

The number of field supervisors needed was computed on the basis of the characteristics of the region, and provision was also made for transport (jeeps) for each of these supervisors, as well as for the medical officers. Although transport thus accounts for what may be thought an unduly high figure, it must be regarded as constituting one of the essential features of the scheme.

TABLE 1

BUILDINGS AND EQUIPMENT FOR THE HEALTH POSTS

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of existing buildings In fair condition</th>
<th>Number of buildings needing reconstruction</th>
<th>Number of buildings needed for new posts</th>
<th>Number of buildings for which standard equipment needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>57</td>
<td>1</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>Central</td>
<td>32</td>
<td>3</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>North</td>
<td>36</td>
<td>13</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>125</td>
<td>17</td>
<td>23</td>
<td>31</td>
</tr>
</tbody>
</table>

Table 1 above summarizes the estimated requirements for buildings and equipment. It shows that a minimum of 196 health posts will be required to constitute the health infrastructure. With the addition of the 16 medical centres, the network will have 212 “points”; the average ratio of the population and area to health point being as follows:

<table>
<thead>
<tr>
<th>Region</th>
<th>Population</th>
<th>Area (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>8 800</td>
<td>133</td>
</tr>
<tr>
<td>Central</td>
<td>8 200</td>
<td>523</td>
</tr>
<tr>
<td>North</td>
<td>8 500</td>
<td>272</td>
</tr>
</tbody>
</table>

The large average area per health point in the central region is due to the fact that the region includes extensive zones that are completely uninhabited.
TABLE 2

PERSONNEL FOR THE HEALTH POSTS

<table>
<thead>
<tr>
<th>Region</th>
<th>Existing</th>
<th>Additional needs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Auxiliary nurse</td>
<td>Auxiliary midwife</td>
</tr>
<tr>
<td>South</td>
<td>58</td>
<td>23</td>
</tr>
<tr>
<td>North</td>
<td>35</td>
<td>17</td>
</tr>
<tr>
<td>Central</td>
<td>49</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>142</td>
<td>59</td>
</tr>
</tbody>
</table>

Table 2 would appear to indicate that personnel needs are very high in relation to the manpower available in the country. A preliminary inquiry, however, suggested that the recruitment of so large a number of auxiliary visitors would not prove an insurmountable obstacle, and that finance and training would pose more serious problems. The table also shows the estimated number of auxiliary midwives, on the basis of one to each post: though not indispensable, this is a desirable ratio in view of the tremendous problems connected with infant mortality, diarrhoeal disease in children, tetanus neonatorum and puerperal sepsis. But, of course, a radical change should be made in the orientation of these auxiliary midwives: a transition from the exclusive function of delivery attendance to real preventive work in maternal and child health.

Classification of expenses

Expenses are presented under three categories, as follows:

(a) Investment. This includes initial costs, such as construction or reconstruction of buildings, equipment for health posts, and transport facilities. These expenses are quite high in relation to the financial capacity of the country, and it is therefore hoped that they may be borne mainly through outside collaboration (bilateral agencies such as AID, etc.). Otherwise, either it will prove impossible to carry out the programme or the Government will have to have recourse to some alternative solution such as a long-term loan. An important element not included is the cost of training, in which the collaboration of outside sources will be necessary.

(b) Amortization. This includes provisions for renewal of equipment; improvement, expansion and replacement of buildings; and similar costs. The annual expenses to be incurred are based on arbitrary averages of renewal as follows: 2 years for a bicycle, 5 years for cars and technical equipment, and 20 years for a building. In this case also, it is unlikely that the expenses could be defrayed by the country itself. They are shown because in any event the Government should be fully aware of the financial commitments involved.

(c) Operations. This category includes all recurrent expenses such as salaries, transport, maintenance of buildings, supply of drugs, etc.

Table 3 contains a summary of the estimated expenses under these three categories for the whole health infrastructure. Of course, the total expenditure figure is related


### TABLE 3

**SUMMARY OF ESTIMATED EXPENSES FOR THE HEALTH INFRASTRUCTURE, BY CATEGORY OF EXPENSES**

<table>
<thead>
<tr>
<th>Region</th>
<th>Investment (initial) (millions CFAF)</th>
<th>Amortization (annual) (millions CFAF)</th>
<th>Operations (annual) (millions CFAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>75.6</td>
<td>19.8</td>
<td>96.4</td>
</tr>
<tr>
<td>Central</td>
<td>49.4</td>
<td>11.2</td>
<td>51.5</td>
</tr>
<tr>
<td>North</td>
<td>86.4</td>
<td>15.5</td>
<td>70.8</td>
</tr>
<tr>
<td>Total</td>
<td>211.4</td>
<td>46.5</td>
<td>218.7</td>
</tr>
</tbody>
</table>


to the year in which all health posts should be functioning. According to the plans proposed for the future malaria programme, this should take place by 1972. In other words, there is an interval of ten years, starting in 1963, in which to attain that goal.

It was not possible to determine the precise amount of the current expenses for the existing dispensaries, because they are embodied, without a break-down, in the over-all budget of the Ministry of Health. The best estimate possible suggests that they are in the neighbourhood of CFAF 81,200,000 for operations. There are certain provisions for the building of dispensaries included in the budgets of the administrative districts, but the amount is not known. On the basis of the figure mentioned above (CFAF 81,200,000), the additional expenses for operation would amount to 137.5 million CFAF, that is to say, the 1973 budget would be more than two-and-a-half times higher than the current one—an increase which seems to be too abrupt for a country with such slender prospects of economic advancement. Of course, if the development takes place in twenty years' time, the financing would be less onerous, but that would mean a delay of ten years in starting the malaria eradication programme.

Table 4 shows the estimated distribution of expenses for operations. As indicated previously, some of the figures may be overestimated, including those relating to drugs. Also, the column for salaries includes the expenses for auxiliary midwives—an item considered desirable in view of the acuteness of maternal and child health.

### TABLE 4

**ESTIMATED EXPENSES FOR OPERATION OF THE HEALTH INFRASTRUCTURE**

<table>
<thead>
<tr>
<th>Region</th>
<th>Salaries (millions CFAF)</th>
<th>Transport (millions CFAF)</th>
<th>Drugs (millions CFAF)</th>
<th>Other items (millions CFAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>47.8</td>
<td>9.4</td>
<td>21.8</td>
<td>17.4</td>
</tr>
<tr>
<td>Central</td>
<td>25.3</td>
<td>5.5</td>
<td>11.5</td>
<td>9.2</td>
</tr>
<tr>
<td>North</td>
<td>34.2</td>
<td>8.2</td>
<td>15.8</td>
<td>12.6</td>
</tr>
<tr>
<td>Total</td>
<td>107.3</td>
<td>23.1</td>
<td>49.1</td>
<td>39.2</td>
</tr>
</tbody>
</table>
problems. On the assumption that the figures are acceptable as a working hypothesis, almost one-half of the expenses are absorbed by salaries, the other half being devoted to essential items such as drugs, transport and miscellaneous.

Estimates of per capita costs

Subject to the necessary reservations in respect of the figures, and on the basis of the estimated 1970 population, the per capita cost would be as follows:

<table>
<thead>
<tr>
<th>Region</th>
<th>Investment (initial) CFAF</th>
<th>Amortization (annual) CFAF</th>
<th>Operations (annual) CFAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>92</td>
<td>24</td>
<td>117</td>
</tr>
<tr>
<td>Central</td>
<td>127</td>
<td>28</td>
<td>131</td>
</tr>
<tr>
<td>North</td>
<td>148</td>
<td>26</td>
<td>122</td>
</tr>
<tr>
<td>Country</td>
<td>117</td>
<td>26</td>
<td>122</td>
</tr>
</tbody>
</table>

On the basis of the present rate of exchange (CFAF 240 = US 1.00), a yearly expenditure of about US 0.50 per inhabitant would thus be required for the operation of the infrastructure; and an additional amount of about US 0.11 for the renewal of buildings and equipment. The present annual per capita expenditure may be estimated roughly at about US 0.22.

It must be repeated that these are mere approximations, and that the estimates refer solely to the minimum "front-line" services in rural areas, and are therefore exclusive of expenses at the regional and the central levels.
Annex 4

RELATIONSHIP OF THE YAWS MASS CAMPAIGN AND THE GENERAL HEALTH SERVICES IN THAILAND

1. Attack phase. The programme (assisted throughout by WHO and UNICEF) was started in May 1950 with the object of (a) conducting a systematic campaign for treating all cases of yaws and contacts found in surveys and resurveys in all infected areas (45 provinces with a population of about 12 million); (b) reducing the reservoir of infection to a level at which it would no longer constitute a public health problem and its eventual eradication could be achieved by the rural health services; and (c) preparing these services for such a task. Surveys and resurveys were carried out during the mass attack phase, following the recommended treatment policies, according to the prevalence levels found in the various areas.

2. Planning of consolidation and integration. Following the attack phase, which reduced significantly and rapidly the incidence of active yaws cases, the planning for consolidation and integration started in 1955, due regard being paid to four factors: (a) the maximum prevalence level amenable to management by rural health services, which was established at 2% or less of active cases; (b) the organization, location and capacity of the services; (c) the development of additional services and the improvement of social conditions; and (d) the limitation of integration to selected health centres to be kept under close supervision.

By 1959 the country (with a total population of 20 million) had 77 hospitals with 10,210 beds. In addition, there were 136 first-class health centres under the direction of one full-time doctor, as well as 648 second- and third-class health centres staffed by sanitarians and second-class midwives respectively, each centre serving about 30,000 people and all being relatively well equipped.

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1 Summary of an unpublished working document SEA/VDT/Yaws Conf. 11.
The need for the establishment of health centres in certain areas was emphasized, as well as the need for the supplementary basic training of the staff of health centres in yaws control and other preventive activities such as health education, communicable disease control, maternal and child health, environmental sanitation, and nutrition.

It was realized from the outset that the yaws campaign would run a grave risk if it were to be integrated with inadequate services. Accordingly, it was decided to start the integration on an experimental basis in selected health centres under close supervision by medical staff of the campaign. In this connexion, the following three alternatives were suggested:

(a) The sanitarians of individual health centres should examine and treat yaws in these centres and whenever they were on field duties. They would not be required to undertake special tours for yaws control, but when an infectious case was reported, they should examine all the people of the hamlet concerned, and treat all other cases found, as well as household, school and play contacts.

(b) Depending on the population of the area, one or two field workers of the yaws campaign would be attached to the centre to supervise and assist the centre's sanitarian in yaws control, particularly in remote areas where the work-load would otherwise be too heavy.

(c) One to four field teams would be assigned to the provincial health officer to carry out field surveys in places of origin of cases treated in health centres.

After a year's trial, spot-checks would be carried out in selected areas to find out the results of the experimental integration and compare the three methods summarized above.

3. The first integration trial. Two of the alternatives outlined above were initiated in July 1956. Method (a) was carried out in 21 districts with 31 health centres, and method (b) in 8 districts with 11 centres. Method (c), though regarded as the best when the planning was developed, could not be undertaken because of a lack of personnel. After a trial of eighteen months' duration, it became clear that epidemiological and other requirements for integration could not be met in full. The main reasons were: (i) the number of rural health workers was insufficient, with the result that the additional duties were a heavy burden; (ii) the lack of adequate supervision retarded the routine monthly reports from the centres, making it impossible to obtain information, and consequently to assess the work performed; and (iii) the reports
received were usually inadequate, frequently necessitating their return for correction.

The problem that thus emerged was how to continue the mass campaign indefinitely with resurveys in large areas, to guard against the possibility of a flare-up of the disease in low-prevalence areas left without proper surveillance. The low prevalence of the disease was considered to make case-finding by special teams expensive, and would utilize available manpower in an ineffective way.

4. The second integration trial. It was, however, imperative to continue the efforts to integrate yaws control into the basic health services. After the experience of the first integration trial had been thoroughly studied, the following revisions and improvements were envisaged:

(a) Since the number of general health workers was insufficient to cover the whole population for yaws surveillance in addition to other duties, it was felt that the best alternative would be to reduce the number of people to be examined in resurveys. In Thailand, as elsewhere, children under 15 years are those at greatest risk of infection, up to 80% of the infectious cases being found in this age-group. Surveillance could therefore be concentrated on that group. For practical purposes, the group represented 40% of the total population, and could be subdivided into two categories: the pre-school and the school population. The work could be simplified by using the school as the unit of operation, combining yaws surveillance with other school health activities, and persuading the civil authorities to bring the pre-school children for yaws examination as well as smallpox vaccinations.

(b) Even with this reduction of work-load, there were still other factors which placed total school coverage beyond the capacity of the staff of health centres: (i) the increase in duties connected with other activities made it impossible to visit more than about four schools per month; (ii) the inadequacy of communications in rural areas made the visits quite difficult, especially during the rainy seasons; and (iii) schools function for only eight months of the year.

For these reasons it was considered necessary to assist the health centres by appointing experienced workers of the campaign as "integration supervisors" for defined areas and with the following duties:

(a) School visits. Each area was divided into an inner and an outer circle: the schools in the outer circle were to be visited by the
integration supervisor who was to be equipped with transport facilities (provided by UNICEF), while the schools in the inner circle were assigned to the staff of the health centres.

(b) The integration supervisor would serve as a liaison between the health centres, the provincial health officer and the central office of the yaws campaign.

(c) The monthly schedule of the integration supervisor was envisaged as follows: first week, collection and analysis of reports from the centres and submission to the provincial health officer and to the yaws campaign headquarters; second and third weeks, visits to a minimum of 10 schools within the assigned outer circle; and fourth week, supervision of the health centres as necessary.

(d) During school visits, both the integration supervisor and the sanitarian of the health centre were to undertake not only yaws surveillance but other duties such as smallpox vaccination, treatment of eye and skin diseases, school sanitation and health education.

(e) During school holidays the integration supervisor was to be assigned to the provincial health officer for other duties, especially to assist in the improvement of rural sanitation.

After the plans were approved by the Department of Health (June 1959), certain provinces were chosen for the trial according to the following criteria: (i) the yaws prevalence at the last resurvey was below 2% active, and 0.5% infectious cases; (ii) there was good cooperation on the part of the local health authorities; and (iii) community development plans had been initiated in the province, and general standard of living showed a tendency towards improvement.

Before the opening of the integration trial, a week’s basic training course was given to the local health personnel, the schools were divided into the inner and outer circles according to the plan, and finally equipment and drugs were supplied by UNICEF.

This trial was implemented in five provinces during the second half of 1959. At the end of the six-month period it was found that: (i) the trial was serving as a valuable multi-purpose approach to the promotion of rural health services; (ii) the expenditure for yaws surveillance was at least three times lower than that incurred in the earlier parts of the programme, and since the activities covered a wide range of health problems, the per capita cost of general health care was markedly reduced; and (iii) the speed at which a province could be covered was approximately three times greater than that which could be achieved by the anti-yaws mobile teams at this stage of the campaign, when epidemiological speed was of somewhat reduced importance.
The approach to this second trial was found acceptable. It was termed a “partial integration” since, on the average, two-thirds of the yaws surveillance was achieved by the rural health centres and one-third by the integration supervisor, while the over-all supervision remained the direct responsibility of the yaws campaign headquarters, particularly for the high-prevalence areas of the past. It was decided that the trial should continue and expand progressively up to the end of 1962, in the expectation that all 46 “yaws provinces” would be covered by the beginning of 1963.

By the middle of 1961 an interim evaluation indicated that the promotion of health services was still not satisfactory, the performance of both integration supervisors and general health workers being below par and the population coverage and work-load relatively low. The following remedies were attempted: (i) concentrated efforts on the part of all concerned to apply closer supervision to all aspects of the work; (ii) periodical refresher training courses, and meetings with all provincial health officers for constant evaluation; and (iii) appointment of “integration inspectors” selected on the basis of experience, supervisory capacity and technical and administrative ability, to represent the yaws central office in the field.

The real integration will start after the partial integration has been in effect for at least a three-year period during which no infectious cases are reported. At that point the integration supervisors and the related budget will be absorbed by the provincial health services, in order to strengthen the general health work of the rural areas.

5. Practical obstacles. The integration of the yaws campaign in the general health services has been stimulated by and through the staff and organization of the campaign. The question thus arises whether, once the specialized machinery is demobilized, the objective of yaws surveillance can be kept in focus and the momentum towards promoting rural health services maintained. In anticipation of this, the Department of Health has set up a committee (including WHO advisers) to work out solutions to difficulties which may lie ahead.

“Consolidation” and “integration” from a theoretical point of view are very easy, but not so when it is sought to translate these terms into practice. The over-all obstacles confronting the practicable integration of the yaws campaign can be summarized as follows:

(a) The lack of proper planning at its inception has led to certain complications and confusion—a development not, after all, peculiar to the yaws-control programme. Future activities will profit from the experience gained through the Committee on Integration set up by the Health Department.
(b) There is need for the provision of over-all supervision, and especially for an understanding of its methods and objectives.

(c) Adequate training and retraining of health personnel in preventive approaches, multi-purpose health measures and health education are of the utmost importance. They are also instruments of great value for understanding the health workers' attitudes and problems, planning and orienting their duties and eliciting their co-operation.

(d) In countries where the preventive and curative services are organizationally separated, an attempt should be made to co-ordinate them at the peripheral echelons. This co-ordination seems especially important in areas where the personnel is inadequate.

(e) In countries where health personnel is insufficient, the use of auxiliaries in the consolidation and integration phases of mass campaigns should be considered, so that their services may be distributed more effectively over the whole population. However, plans for integration should not overlook the welfare of the auxiliaries themselves; how their skills may best be used when the initial purpose has been served is among the points to be studied.

* * *

The description of the yaws programme in Thailand serves to demonstrate the difficulties involved in the transfer of responsibilities for the terminal stage of a mass campaign which, so far, has been successfully conducted. In this particular programme, it seems that despite the efforts made, the process of attaining that goal was unavoidably lengthened, through the inability of the basic health services to cope with the increase in work-load which is entailed by adequate epidemiological surveillance.
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