Handbook for Smallpox Eradication in Endemic Areas (1st revision)
Smallpox eradication unit, WHO
SE/67/5 Rev 1
1967

SMALLPOX ERADICATION AND THE GENERAL HEALTH SERVICES

SMALLPOX ERADICATION AND THE GENERAL HEALTH SERVICES

1. Introduction

In the countries where smallpox is endemic, the general health services at present levels of development are not capable alone of undertaking the intensive systematic vaccination programmes and surveillance activities required for the eradication of smallpox. Thus, a special effort, including a mass campaign, is required in virtually all endemic areas. The question, however, which is frequently posed by national authorities is how this type of mass campaign can be related to the development of the general health services. Are the two objectives compatible?

2. General considerations with respect to mass campaigns and the general health services

In 1964, a WHO Study Group was convened in Geneva to deal specifically with the question of "Integration of Mass Campaigns against Specific Diseases into General Health Services". The report of the Committee was published as Technical Report Series, No. 294. Quoted below are pertinent highlights from this report. The full report should be consulted with respect to elaboration and detail.

2.1 Definitions

The WHO Study Group adopted the following definitions as a basic frame of reference:

2.1.1 Mass campaign: a scheme for the control or eradication of a particular communicable disease on a community-wide basis, carried out by machinery operating with that precise objective.

2.1.2 General health services: a country-wide system of established institutions with multi-purpose objectives, having a definite organizational structure at all levels - local, intermediate and central - which would provide services for the promotion of health as well as for the prevention and cure of disease and disability.

2.1.3 Integration: a series of operations concerned in essence with the bringing together of otherwise independent administrative structures, functions, and mental attitudes in such a way as to combine these into a whole.

2.2 Historical role of mass campaigns in the evolution and development of health services

In many countries, mass campaigns have constituted the motive force and provided the bridgehead that eventually led to the organization of general health services, particularly at the local level. Once they have

passed the stage of "attack" or intensive operation, the need for a more or less permanent local structure - a local general health service - is usually felt.

In many ways, mass campaigns have had an influence on the further development of national health services where these were already in existence. They have stimulated the establishment of higher standards in other health work and helped general health personnel to take a broader view of national health problems. As different mass campaigns have been undertaken in a country, either simultaneously or in sequence, the convenience of establishing co-operative relationships between them has made itself apparent. These campaigns have also brought out the need for improved statistical services, health intelligence, positive planning in the health field and increased efficiency of the general health services. Moreover, they have stimulated improvements in general administration and logistics and shown the importance of operational research as a part of the responsibility of any health activity. Frequently, as a mass campaign against one disease achieves success, diseases which have not hitherto received serious consideration demand attention and the introduction of further mass campaigns in their turn. Finally, the results achieved have been instrumental in increasing the prestige of health workers in general and improving public understanding and support of health work.

2.3 Comparative merits of the two approaches

Any comparison of mass campaigns and general health services must be based on the conviction that they should not be regarded as mutually exclusive or antagonistic approaches but, on the contrary, as complementary facets of the same effort, namely, the health programme of a given country. So the question is not one of which approach to choose, but of how to relate their respective activities and to merge them at the proper date, taking into account a diversity of factors, such as time, place and resources, the urgency of solving a particular health problem and the need to achieve the maximum of effect with the minimum of means.

In general, the staffing pattern of mass campaigns requires far fewer specially trained professional workers than does that of the general health services, and is thus less affected by the difficulty of obtaining staff in countries where professional workers are scarce. Furthermore, these campaigns usually utilize a large number of auxiliary personnel, trained comparatively quickly to perform one or more simple operations reliably. This opens the possibility of utilizing such personnel for further work, since after the necessary retraining, they can participate in other mass campaigns or be incorporated into the general health services. In certain countries it has been found that previous experience in mass campaigns is very valuable as a background for future participation in the general health services.

Some mass campaigns, or at least certain phases of them, can be conducted even though general health services have not been developed, as shown by the high degree of success obtained by many countries in such circumstances. It is undeniable, however, that an infrastructure of local health services must be organized if the benefits gained are to be long lasting.

By producing positive results in a relatively short period of time, mass campaigns against certain diseases counteract inertia, apathy and lack of interest in health matters on the part of the public. In some instances, people are able to detect a cause-and-effect relationship between the introduction of a specific procedure and the disappearance of a disease. In this way, a public demand and a positive receptiveness for health measures are created. This is a clear merit of the mass campaign, the population usually being slow to appreciate the less spectacular results of the work of the general health services.

In order to perform their task, general health services should be stable in time and in space. Permanence and continuity are essential for the services to take care of the normal, everyday health needs of people who are healthy, and to keep them healthy; to deal with conditions which result in illness, eliminating them wherever possible; and, finally, to provide care of the sick when it has not been possible to prevent illness.

The existence and operation of well-developed general health services properly organized to deal with communicable disease programmes facilitate the introduction and running of mass campaigns. In countries where an infrastructure exists, the development of mass campaigns to deal with a health problem of country-wide or regional importance is made much easier.

In summary, mass campaigns as a public health measure and method have a place not only in the control or eradication of specific diseases but also in the spread of knowledge for the prevention of illness and the promotion of health. They are not a substitute for general health services, but have contributed a great deal to the development of such services and should be expected to play this role in the future. The use of the mass campaign approach permits the speedy application of knowledge on a short-term basis to obtain certain desired results. In this way, it can both complement and supplement the general health services in the task of ensuring better health for the people.

2.4 The development of relationships between mass campaigns and general health services

2.4.1 General principles

2.4.1.1 Creation of favourable attitudes

An active and positive collaboration between mass campaign personnel and those concerned with the general health services requires the development of a proper attitude and frame of mind. Both groups of personnel must feel that mass campaigns and general health services are dependent on each other, and must regard mass campaigns as an integral part of the over-all health programme of the country. General health service personnel must understand the purpose and justifications of a mass campaign. This can be achieved if they are informed of the campaign and, even better, actually involved from the beginning in its planning. Similarly, mass campaign personnel should have a proper orientation to the general health services and the required recognition of its organization and objectives. Personnel in mass campaigns should realize from the very beginning that, at some stage of the campaign, they will either become an operating section of the general health services or be completely incorporated into them.

2.4.1.2 Clear definition of responsibilities

The establishment of an effective association between mass campaigns and the general health service also requires that their personnel have a clear understanding of their respective responsibilities at the different stages of the campaign. This is true not only of the personal responsibilities of each individual member but also of the operations of a team as a whole. Whatever the role of the general health services in a mass campaign, it must be considered as part of their normal duties and not as mere collaboration. Consequently, the functions assigned must be detailed in such a way as to be understood completely by the health workers responsible for their execution, particularly the low-grade auxiliaries.

2.4.1.3 Early and gradual participation

The importance of involving the general health services in mass campaigns from the planning stage onwards cannot be stressed too strongly.

2.4.1.4 Supervisory mechanism

While it is generally recognized that a high level of efficient and direct supervision, particularly of auxiliary personnel, at all levels of the operation largely accounts for the success of mass campaigns, the

need for similar supervision in the general health services is less widely appreciated. It is nevertheless equally essential, especially in those residual but continuing activities of a mass campaign taken over by the general health services, since in many areas such activities will have to be carried out by auxiliaries. It might be advisable in some instances to consider the use of specialized supervisors to supplement the normal supervisory mechanism of the general health services for a certain time, in order to ensure efficient maintenance of the results obtained by the mass campaigns, particularly eradication programmes.

2.4.2 Development of the campaign

2.4.2.1 Planning

The launching of a campaign should be preceded by a careful analysis of all its implications. At this stage, it is of the utmost importance to establish at the central level an effective mechanism to ensure proper co-operation between the officers responsible for directing the mass campaigns and those in charge of the other organizational units. There should be frequent consultations as to ways and means whereby all can assist in the planning and later in the actual implementation of the programme.

The local and intermediate levels of the general health services should also be involved in the planning stage. They should be well-informed of the technical and operational details of the campaign and given an opportunity to submit suggestions as to the best way in which they can participate. Whenever appropriate, these suggestions should be incorporated into the plan of operations of the campaign.

It has sometimes happened that local authorities and local health personnel have not been consulted when mass campaigns were being planned nor even informed that they were in progress. In these circumstances, the campaigns have suffered because of the inevitable lack of local support.

2.4.2.2 Operations

During the operational phases, the participation of the general health services depends on the nature of the disease under attack and the state of development of the services. It has been indicated that no matter how modest that development is, the greatest possible participation should be assured. Local and regional health services, well oriented on the details of the campaign, are able to provide valuable information and help: knowledge of the area and of the people's habits and beliefs; clinical and epidemiological data, even if elementary; accommodation of staff and storage of supplies; and co-operation in educational activities and in introducing mass campaign personnel to the population and community leaders. Likewise, if the degree of development of the health services permits, they can be used for certain aspects of the operation programme itself, e.g. vaccinations, storage of vaccines, surveillance, etc.

2.4.2.3 Maintenance

It has been accepted that a mass campaign can be and may need to be initiated even where the network of local and intermediate health services is inadequate or non-existent, but for the maintenance stages a satisfactory network is, sooner or later, a sine qua non, because it is at this stage that the outstanding problems known as maintenance vaccination and epidemiological surveillance become quite apparent.

2.4.2.4 Training of personnel

It is evident that a great effort must be made in order to provide health workers with an outlook broader than that which they have been given in the past. For instance, staff to be assigned to mass campaigns should be trained in such a way as to permit them to assimilate further training at a future date to qualify them to perform multipurpose functions as soon as circumstances so warrant. Similarly, general health service personnel should be given the required basic knowledge to permit them to understand the purpose and procedures of mass campaigns.

2.5 Conclusions

Of a number of conclusions reached by the Study Group, a few are of particular interest:

2.5.1 Mass campaigns are useful, indeed indispensable, in breaking the vicious circle of excessive sickness, low productivity and poverty. There are still countries in which mass campaigns against major communicable diseases should be launched, even though there is not as yet a satisfactory system of general health services.

2.5.2 Accepting this point of view, some countries will be amply justified in devoting a substantial portion of their available resources to certain mass campaigns which would constitute the initial operation in the creation of a balanced national health programme. However, in doing so, they should not forget that such an approach must be considered as a temporary expedient within the long-range health development, and that the ultimate goal must be the establishment of a permanent scheme of general health services.

2.5.3 Mass campaigns can and should be used as an instrument for the development of general health services. There are several ways in which this can be done. Among the possible alternatives, special attention should be given to an organizational pattern such as "sequential campaigns".

In this pattern, the early stage of a mass campaign against a given disease is followed by the consecutive undertaking of activities against other diseases, maintaining nevertheless the necessary surveillance of the earlier campaign. In this way, as the process continues, the single-purpose interest of the campaign staff at the outset will be gradually broadened to comprise several additional functions, and they will thus gradually become multi-purpose health workers.

2.5.4 The concept of integration of mass campaigns and the general health services is easily stated and understood, but the translation of the idea into reality is not so easy. The first desideratum is a psychological one, namely, that amongst all health workers, there should be a firm conviction that the two approaches, i.e. general health services and mass campaigns, are not mutually exclusive but complementary. Their progressive convergence and ultimate merging must be sought in order to comply with the accepted view that all problems and programmes in the health field are so interdependent that they must be considered together.

2.5.5 In certain areas where mass campaigns in operation are nearing or have reached the terminal stages, but where there is not an adequate system of general health services to undertake full responsibility for the residual tasks, the problem of integration has often become a matter of urgency. This urgency, however, must not lead to precipitate action which may cause the possible loss of the benefits gained so laboriously. The transfer of duties to the general health services in the stages of mass campaigns must be preceded by a careful and detailed study of the situation, using the pilot survey and trial to obtain the necessary facts and experience.

3. Specific considerations with respect to the smallpox programme

The observations of the WHO Study Group are most pertinent to the smallpox programme. On the basis of recent experience, however, two points need to be amplified.

3.1 Need for continuation of the smallpox vaccination and programme staff until smallpox-free status in a country has been achieved

In at least one country it has happened that smallpox programme staff, following a single cycle of vaccination, were absorbed into a general health services structure known to be deficient in supervisory capability. It had been assumed that an efficient mass vaccination campaign should result in termination of smallpox transmission permitting the initiation of a "maintenance" programme of vaccination and surveillance, which would be carried on within the context of the general health services. Unfortunately, the mass campaign was not as effective as hoped, smallpox persisted, but the smallpox staff had been precipitously integrated into an inadequately prepared general health services structure. The resulting situation has been anything but satisfactory.

Progressive integration of the two activities is certainly requisite when the country achieves smallpox-free status. However, if done prior to this, and before the general health services are prepared, the impetus of the smallpox programme and the focus of interest upon the disease is quickly lost. Such gains as have been made are rapidly dissipated.

3.2 The multi-purpose health worker

The addition of vaccination duties to a variety of other activities of the multi-purpose health worker has been proposed in some areas. Although superficially an ideal solution to reduce the number of contacts with a given family, and at the same time to provide multiple services, such a plan should recognize the logistic and economic difficulties related to vaccination in this context, particularly with respect to the problems of vaccine storage and distribution. For example, in India at the present time, one vaccinator, proceeding house to house, can vaccinate 50 persons; as a multi-purpose worker, he would be expected to vaccinate only five persons per day. Freeze-dried smallpox vaccine, for technical reasons, cannot be packaged in containers smaller than 10 doses. The vaccine, after reconstitution and under field conditions, exposed to high temperatures and sunlight, cannot be expected to retain potency for more than one working day. A worker vaccinating only five persons per day will obviously waste a considerable amount of vaccine. It must also be noted that the costs for vaccine per dose when packaged in 10 dose containers may be as much as 10 times greater than that packaged in 50-100 dose containers. These problems are, of course, quite aside from the difficult problems of supervision of large numbers of vaccinators to ensure adequate technique.

For these reasons, even in the maintenance phase it will almost always be found to be more efficient and economical in the context of the general health services to retain special vaccinators whose responsibility is for vaccination only. However, the administration of one or several additional types of vaccines might be worked out. Vaccinators so designated can be specially trained in vaccination techniques as well as in the proper storage and reconstitution of vaccine; vaccine costs should be substantially lower; supervision of the more limited number of vaccinators should prove much easier.

4. Summary - role of the general health services in the smallpox eradication programme

The importance of the full participation of the health services in the smallpox eradication programme is well recognized. The Eighteenth World Health Assembly made a comprehensive review of the position of global smallpox eradication, as well as the requirements for its effective development, and in its resolution, WHA18.38 [1], requested "governments to take early steps to establish basic health services for the maintenance phase...".

---

[1] Handbook of Resolutions and Decisions, 8th ed., p. 51.

It is expected that in some countries the existing general public health services will be able to undertake a significant portion of the smallpox eradication activities and that they may, to a great extent, be capable of integrating smallpox eradication activities. This will serve two main purposes, namely, the desirable promotion of the basic health service structure, and the achievement of the important task of smallpox eradication.

The relative degree and type of participation of the general health services in smallpox eradication will vary from country to country depending on the resources available and on the pattern and coverage by community health services of any particular country or part of a country. Detailed planning can be done effectively only on the spot and must involve all concerned sections in the national health administration to see how best existing health services can be mobilized to assist the smallpox eradication programme and how the smallpox programme, in turn, can strengthen the existing health structure. It is essential for those responsible for basic health services at all levels, central, intermediate and local, to be involved from the inception of the smallpox eradication programme to ensure their full collaboration in all phases of its implementation.

Many countries have already had considerable experience with mass campaigns for the control or eradication of some diseases, e.g., yaws, malaria and tuberculosis. It is important that the lessons learned should be taken into consideration in planning for smallpox eradication. Specialized mobile teams, either provided by the basic health services, or newly recruited, will generally be needed for total population coverage, at least in the initial phases. If, in any local areas, existing health services are strong enough to provide coverage of the community with a house-to-house family service, specialized vaccination teams may not be necessary. Even so, in such situations, a special effort will be needed to stimulate and train health personnel with a view to the organization of effective immunization coverage. As soon as a particular community has been covered in the first round of vaccination, plans should be developed where possible for local community health services to assume the maximum possible responsibility for the continued vaccination of the newborn, of immigrants, of persons "missed" during the mass vaccination period, and of the population at large at regular intervals.

This approach presupposes that the planning of smallpox vaccination programmes will provide for the training of basic health service staff as well as specialized vaccinators. It may often be desirable as the programme advances to detach trained vaccinators and to leave them as permanent additions to the strength of the local health unit. In any case, training of existing personnel in various health units in smallpox eradication requirements is the sine qua non of a successful campaign.

In areas where mobile teams represent the only possible approach in the vaccination programme, consideration should be given to enlisting the services of local community leaders to maintain records and to prepare the community for each visit of a mobile team. This approach will ensure effective participation of the local authorities and help sustain the community's acceptance and interest in the programme.

In many countries, there may be communicable disease programmes in progress, for example, BCG vaccination, yaws eradication, malaria eradication or pre-eradication, trachoma control, etc. The combination of smallpox eradication activities with these programmes can be envisaged, especially in maintenance and surveillance activities. Pilot projects, however, should first be carried out to ascertain the feasibility of such integration.

Maternal and child health and school health services, wherever they exist, obviously should participate; midwives, in some instances, may be able to participate in vaccination of the newborn.

In addition to these activities, the health units of the country should at all stages of the programme participate actively in the reporting of smallpox cases. Where possible, they should be trained in procedures of simple field investigation of cases and outbreaks, and appropriate containment measures to be taken. In other words, they should play a major and continuing role in the surveillance structure.

All such considerations lead to the conclusion that a successful smallpox eradication programme must closely involve all levels of the general health services. A pre-planning activity in any country should include:

(a) a study of how and where existing general and specialized health activities can play an effective part, and a definition of the responsibilities of the professional officers and auxiliary health workers at the district and community levels;

(b) the delineation of areas where no general health services exist or where they are inadequately developed and where there is need to establish mobile health teams to play a comprehensive role in the programme;

(c) a study of the health facilities required to provide adequate maintenance of vaccination status in the population;

(d) a study of the role and participation of the facilities in the essential surveillance activities of the programme.