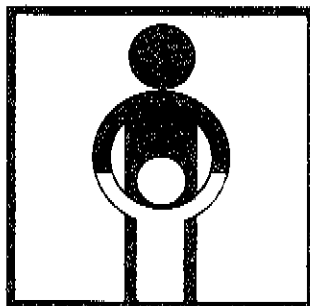


Polio myelitis - Epi d

**GLOBAL POLIOMYELITIS ERADICATION
BY THE YEAR 2000**

PLAN OF ACTION



GLOBAL POLIOMYELITIS ERADICATION BY THE YEAR 2000:

PLAN OF ACTION

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1 November 1988

I. INTRODUCTION

In May, 1988, the World Health Assembly committed WHO to the global eradication of poliomyelitis by the year 2000 (resolution WHA41.28). The Health Assembly emphasized that eradication efforts should be pursued in ways which strengthen the development of the Expanded Programme on Immunization (EPI), fostering its contribution, in turn, to the development of primary health care.

The Assembly had as background the "Declaration of Talloires", which also cited this polio eradication goal. The Declaration was issued by the Task Force for Child Survival (comprised of WHO, UNICEF, the World Bank, UNDP and the Rockefeller Foundation) following a meeting in March, 1988 in Talloires, France attended by world leaders in the area of health and development.

This Plan of Action draws on the experience which has been gained in the Region of the Americas, which began its drive toward hemispheric polio eradication in 1985. This experience provides optimism that the specialized efforts required for eradication can indeed be used as leading edges for strengthening broader aspects of immunization and other health services.

The progress of the EPI has provided optimism that poliomyelitis can be eradicated during the next decade. In 1988, coverage rates for a third dose of polio or DPT vaccines in developing countries were surpassing 60%. In response to the EPI goal of providing immunization for all children of the world by 1990 (also termed universal child immunization by 1990 or "UCI-1990"), national and international efforts are being intensified to bring these levels to 80% or more for all antigens included in the programme by this date. Achieving and sustaining these levels is a prerequisite for the global eradication of poliomyelitis.

There is an urgent need to improve the surveillance of poliomyelitis so that epidemiologically useful information about cases and outbreaks can be used to guide and refine eradication strategies. For example, experience to date suggests that the circulation of wild polioviruses in communities is heavily dependent on intimate person to person contact. Large urban areas seem to be foci for particularly intensive transmission of polioviruses, and may play an important role in exporting virus to less densely settled populations.

Once freed of endemic transmission, areas within individual countries, and groups of countries themselves, may not have as great a risk of again becoming endemic as had been thought previously. This raises the possibility of approaching global eradication by working on the elimination of endemic transmission from defined groups of countries. This also highlights the importance of achieving high immunization coverage in urban areas, particularly among socially disadvantaged groups.

In 1987, only some 10% of the quarter of a million cases of poliomyelitis which were estimated to occur in that year were officially reported. Trends in

reported cases may be difficult to interpret in coming years since the real decline in incidence which is expected may be hidden because of improvements in disease surveillance. These improvements may actually make it appear that the incidence of poliomyelitis is increasing, a phenomenon experienced in the course of the smallpox eradication programme.

The strategies outlined in this plan need to remain flexible, evolving on the basis of experience gained in national programmes. This has particular implications for the budget estimates which have been provided which at this stage (particularly for the later years of the initiative) are mainly intended as indications of orders of magnitude of needed resources. Both the Plan of Action and the budget estimates will need continuing review and updating in coming years.

II. OBJECTIVES

By the year 2000:

- no case of clinical poliomyelitis associated with wild poliovirus;
- no wild poliovirus identified worldwide through sampling of communities and environments;
- the process of independent certification of global poliomyelitis eradication begun so that consideration can be given to stopping polio immunization (a three year period during which active surveillance reveals neither cases nor the circulation of wild polioviruses is currently envisioned).

By the year 1995:

- achievement of poliomyelitis eradication, defined as the cessation of indigenous transmission of wild poliovirus, in the European and Western Pacific Regions with formal certification in the American Region;
- cessation of indigenous transmission of wild poliovirus within five or more countries each in the African, Eastern Mediterranean and South-East Asian Regions, preferably in epidemiologically defined zones, and documentation of 'polio-free zones' within the majority of the remaining countries;
- expansion and strengthening of the network of laboratories which:
 - = reliably measure serum antibodies to poliovirus by type,
 - = isolate, identify and, if necessary carry out intratypic differentiation of polioviruses from clinical and sewage samples,
 - = refer samples as needed for further characterization;

- establishment of systems which permit all countries to refer specimens for laboratory diagnosis as required;
- intratypic characterization of poliovirus isolates from all poliomyelitis-like cases/outbreaks through appropriate methods in areas previously considered to be polio-free so that a probable source or sources can be identified;
- annual review/revision of national poliomyelitis eradication plans in countries not yet free from wild poliovirus and development of special action programmes in countries whose infrastructure appears insufficient to permit achievement of the goal by the year 2000; in countries where outside resources are required to supplement national resources, national plans are to be developed in collaboration with donors who will be co-signatories to the plan.

By the year 1990:

- monitoring of poliomyelitis incidence and immunization coverage in all countries by "district" (a geo-political sub-division with a population that could range from a few hundred thousand to a few million);
- reporting poliomyelitis incidence by district at least monthly to regional and global levels;
- review of poliomyelitis status of all countries and development of poliomyelitis eradication plans in endemic countries;
- confirmation that all countries use vaccines which meet WHO requirements;
- adoption of a standard case definition for cases of poliomyelitis and of standard laboratory diagnostic methods;
- introduction of poliomyelitis eradication training materials for field staff (relating particularly to surveillance and outbreak control), and laboratory personnel (relating particularly to poliovirus isolation and identification, to vaccine potency testing and to serological tests for polio immunity), and initiation of inter-regional, inter-country and national training programmes;
- establishment of a network of poliomyelitis reference laboratories which are able to isolate and type poliovirus and differentiate vaccine like from wild poliovirus and which are willing to test specimens from one or more countries for diagnostic purposes;

- validation of simple, rapid tests to confirm the presence of poliovirus in samples taken from individuals and from the environment;

- pursuit of epidemiological research to better characterize the patterns of spread of wild viruses and to define rapid, effective outbreak control procedures;

- review of current oral polio vaccine formulations to decide whether changes in WHO requirements are warranted, review of combined use of inactivated and oral vaccines and promotion of the further development and testing of new oral polio vaccines with a view towards being able to introduce them by 1995;

- establishment in each Region of advisory bodies which will:

- 1) review at least annually the progress being achieved to eradicate polio in the context of the EPI,

- 2) offer advice concerning the improvement of programmes in the Region, and

- 3) promote coordination and collaboration among the supporters of national programmes, including United Nations Agencies, multi- and bilateral development agencies and private/non-governmental organizations.

III. STRATEGIES

Seven major areas in which action is required have been identified:

1. Immunization Coverage
2. Surveillance
3. Laboratory Services/Vaccine Quality Control
4. Training
5. Social Mobilization
6. Rehabilitation Services
7. Research and Development

1989-1990

1. Immunization Coverage

All countries should attain coverage of at least 80% with a protective course of polio vaccine among infants by their first birthday and among children in each one-year cohort between the ages of 1 and 4 years. This coverage level should be regarded as a management goal for all districts. Interruption of transmission of wild poliovirus may require coverage levels in excess of 80%, however, especially in areas of high population density, such as periurban slums. By the year 2000, immunization coverage levels should exceed 90% in all countries. To achieve these coverage levels, emphasis will be placed on general strengthening of the EPI infrastructure through:

- training,
- improved supervision,
- reduction of missed immunization opportunities,
- adoption of appropriate immunization schedules and strategies, and
- improved social communication activities.

2. Surveillance

National managers should obtain reports of cases, including reports of zero cases, from each district (or other major geopolitical subdivision) on at least a monthly basis. Monthly reporting, by district, will be introduced progressively, so that by 1995 it will involve all countries. Weekly reporting will be needed as endemic transmission is stopped. It is expected that in most countries this information will contribute to the national management information system for primary health care.

Countries should report cases, by district, to the regional and global level on a monthly basis. This should be achieved as rapidly as possible. Countries and Regions close to achieving polio eradication will need to establish weekly

reporting. Feedback should be provided from the global and regional levels beginning at six-monthly intervals, but moving to monthly or weekly intervals as soon as this becomes feasible.

A clear case definition of poliomyelitis is essential for surveillance. All countries should be encouraged to adopt a standard case definition by 1990. For reporting purposes the following is proposed:

A case of poliomyelitis is defined as any patient with acute flaccid paralysis (including any child less than 15 years of age diagnosed to have Guillain-Barré syndrome) for whom no other cause can be identified.

Countries with fewer than 50 cases per year should establish an expert review committee responsible for the final diagnosis of cases reported as poliomyelitis and for their classification as:

- vaccine-associated,
- wild virus/imported,
- wild virus/indigenous, or
- unknown/other.

3. Laboratory Services/Vaccine Quality Control

Laboratory capabilities for isolating and characterizing polioviruses will be strengthened. A network of international poliomyelitis reference laboratories already exists, and a regional network is being established in the Americas. This reference network will be extended by 1990. Systems for the exchange of samples among reference laboratories and between these laboratories and national programmes will be developed. Prototype kits for the collection and transport of laboratory specimens will be introduced.

WHO will work with countries and producers to assure that all immunization programmes use vaccines which meet WHO requirements. Continued emphasis on cold chain management is a complementary strategy for assuring that vaccine potency is maintained up to the time of administration.

4. Training

EPI is presently revising its training materials to reflect the maturation of most national programmes in developing countries and their increasing similarity to programmes in industrialized countries. One or more EPI modules will be devoted exclusively to poliomyelitis eradication activities for health workers at different levels. Training materials will also be developed for laboratory personnel, relating particularly to poliovirus isolation, identification and strain differentiation, vaccine potency testing, and

serological tests for polio immunity). Inter-regional, inter-country, and national training programmes will be initiated. The EPI will also continue its efforts, in conjunction with other WHO programmes, to integrate its training materials into the curricula of institutions training health staff.

5. Social Mobilization

Creating and maintaining public awareness of the polio eradication initiative will be important for sustaining political and financial commitment to the goal of polio eradication. WHO should collaborate with other agencies and voluntary organizations to develop appropriate media messages and lay education materials. Development of national communication plans including regular media coverage of national, regional, and global progress in immunization coverage and disease control should be encouraged. Progress reports should also be regularly issued to agencies providing support to the EPI.

In recent years political, religious, and community leaders have successfully and enthusiastically participated in social mobilization for immunization acceleration activities. Their continued support will be necessary to increase and sustain immunization coverage levels and may be useful in the development of community surveillance activities.

6. Rehabilitation services

The polio eradication initiative is expected to provide an excellent opportunity for strengthening rehabilitation services in developing countries. Eradication efforts will focus public attention on the tragic consequences of poliomyelitis, and will create an environment in which rehabilitation efforts can be expected to receive additional support, particularly from local resources. As the number of cases diminishes, these efforts can become more comprehensive, covering an ever larger proportion of all cases which occur and providing a more extensive array of services to each case.

Rehabilitation efforts undertaken in conjunction with poliomyelitis eradication will support the eradication effort itself, among other things helping to assure that all cases of polio come to the attention of health authorities. These efforts should also contribute to the development of more comprehensive national rehabilitation services by strengthening the health infrastructure and by building a public constituency which can focus on other causes of disability as polio disappears from the scene.

Some polio rehabilitation initiatives are already being undertaken internationally, most notably by IMPACT, an organization devoted to the prevention of avoidable disability co-sponsored by WHO, UNICEF and UNDP, and by Rotary International, which is providing some US\$ 10 million to support polio rehabilitation work. However, the major contributions to these efforts are expected to come

from within endemic countries and national rehabilitation services should become increasingly visible during the 1990's.

7. Research and Development

The development of simple, rapid diagnostic tests for poliomyelitis is an immediate priority. Special studies will be initiated to improve surveillance for poliomyelitis, including:

- the use of simplified tests for confirming infection,
- techniques for detecting wild poliovirus in the environment, and
- methods for stimulating active case reporting.

Operational research will be conducted to define cost-effective methods of interrupting transmission of wild poliovirus. These include strategies for reaching populations in peri-urban slums, populations which are now posing major challenges to immunization and other primary health care programmes.

Current studies on the optimal formulation of oral polio vaccine for developing countries will be pursued with the objective of making definitive recommendations by 1990 concerning any changes which might be warranted. The combined use of oral and inactivated polio vaccines will be examined. Basic research to develop improved oral polio vaccines will be promoted.

1991 through 1995

This period will see increasing application of the strategies developed during the previous period. By 1995 health workers in all countries not considered polio-free will have received specific training in polio eradication techniques. By 1995 reliable surveillance information will be available from every country, by district, on at least a monthly basis. In countries reporting fewer than 10 cases per year, all cases of flaccid paralysis with no other immediately obvious cause will be investigated (including the appropriate application of laboratory confirmation and characterization of the virus(es) concerned), and reported as vaccine-associated, wild virus/imported, wild virus/indigenous, or unknown/other.

1996 to the year 2000

This will be the period during which the global drive to eradicate poliomyelitis will be intensified. By 1996, endemic transmission of wild poliovirus should be confined to well-defined areas in 10 to 20 countries. While continuation of routine operations may suffice for some of the countries which are not yet polio-free, it is likely that exceptional eradication measures, such as immunization campaigns conducted on a national or sub-national basis, will be

required in other countries. Some countries will require additional support from outside collaborators for supplies, equipment, and operating costs. In some circumstances, the services of international consultants may be called upon to support national managers in the planning, implementation, and analysis of the effectiveness of eradication strategies.

Application of strategies at National level

In the development of national plans for the eradication of poliomyelitis, consideration should be given to immunization coverage rates and the number of cases reported. In the absence of an alternative regional or sub-regional strategy, countries (or areas within countries) can be categorized according to these variables into four groups:

Group A - Countries considered to be polio-free:

These are countries with reliable reporting systems, which have reported no indigenous case of poliomyelitis for at least the previous three years and have achieved a coverage of 80% or higher among infants by their first birthday and among children in each one-year cohort between the ages of 1 and 4 years. These countries should maintain their immunization programme. Zero case reporting from all districts should be continued. Any reported case should be investigated promptly with full laboratory support to confirm the diagnosis. An expert review committee should be established which would be responsible for final diagnosis of cases and their classification as wild virus/indigenous, wild virus/imported, vaccine-associated, or unknown/other. Outbreak control measures should be rapidly instituted if transmission of wild poliovirus appears likely.

Group B - Countries with less than 10 cases per year and coverage rates of over 50%:

Many of these countries may already be free of indigenous transmission of wild poliovirus, with cases being imported or vaccine-associated. These countries should review their surveillance systems to assure that all cases are being reported and investigated. Clinical diagnoses should be confirmed through full laboratory testing. Consideration should be given to establishing an expert review committee which would be responsible for final diagnosis of cases and their classification as wild virus/indigenous, wild virus/imported, vaccine-associated, or unknown/other. Countries with indigenous cases should identify common risk factors and undertake special immunization initiatives to interrupt transmission. These countries should continue their efforts to achieve high immunization coverage levels.

Group C - Countries with 10 or more cases of poliomyelitis and coverage rates of over 50%:

In these countries primary emphasis should be placed on improving immunization coverage and strengthening surveillance systems. National or local immunization days or other special strategies may be considered as a means for increasing coverage. Surveillance systems should define areas of continued transmission. Outbreak control and case investigation should be increasingly emphasized in countries or areas within countries in which endemic transmission is close to elimination. Countries which report fewer than 50 cases per year should provide specimens from each case for laboratory confirmation. They should consider establishing an expert review committee responsible for the final diagnosis of cases reported as poliomyelitis and for their classification as wild virus/indigenous, wild virus/imported, vaccine associated or unknown/other.

Group D - Countries with 10 or more cases of poliomyelitis or unknown incidence and/or coverage rates of 50% or below or unknown:

In these countries primary emphasis should be placed on increasing routine immunization coverage. National immunization days or other special strategies may be considered as a means for increasing coverage. These strategies represent a complement to routine services and should include all EPI antigens. Group D countries should also develop surveillance systems, initially focusing on sentinel surveillance. Outbreak control and investigation of cases or outbreaks will be particularly encouraged in areas of the country where coverage exceeds 50%. Laboratory confirmation of clinical diagnoses is not a priority, except in countries or areas within countries where endemic transmission has stopped.

Variations in these strategies may be appropriate. For example, efforts will be made to establish epidemiologically-defined zones consisting of groups of contiguous countries that would benefit from inter-country coordination of eradication strategies. In such circumstances, it may be advisable to emphasize surveillance and outbreak control measures in a Group D country if it is thought to be a major focus for export of wild poliovirus to neighbouring countries.

A provisional classification of countries, based on data available to WHO/EPI/Geneva as of 1 August 1988, is provided in Figure 1. Of the total global population, 17% lives in Group A countries, 7% in Group B countries, 60% in Group C countries, and 16% in Group D countries (Table 1).

Figure 1. Countries/areas according to category of polio incidence/coverage, 1 August 1988

Fig. 1 COUNTRIES/AREAS ACCORDING TO CATEGORY OF POLIO INCIDENCES/COVERAGE, 1 AUGUST 1988

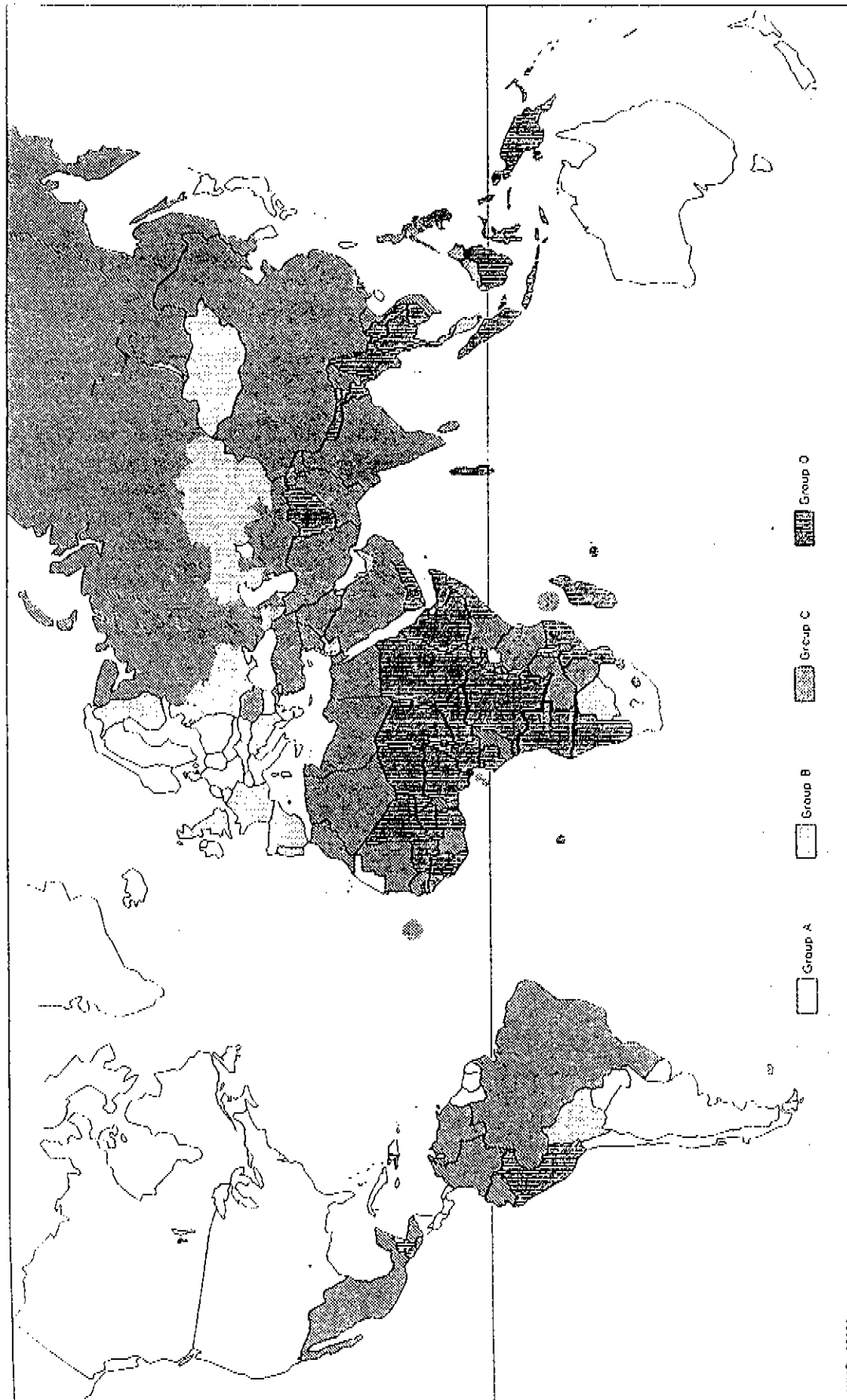


Table 1. Population (in millions) by category of polio incidence/ coverage, by Region, 1 August 1988

Region	Population			
	A	B	C	D
AFR ¹	1	1	132	307
AMR	350	13	291	35
EMR	3	10	282	56
EUR ²	287	292	254	0
SEAR	0	2	819	387
WPR	186	25	1205	16
Total	827	344	2983	801
in %	17	7	60	16

¹ - South Africa excluded

² - The 15 Republics of the Soviet Union have each been counted as a separate country/area

Group A: - Zero indigenous cases due to wild virus for the last 3 years and immunization coverage >80%

Group B: - Less than 10 cases per year for the last 3 years and immunization coverage >50%

Group C: - More than 10 cases per year and immunization coverage >50%

Group D: - More than 10 cases per year or unknown incidence and/or immunization coverage <50% or unknown

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IV. WHO RESPONSIBILITIES AT NATIONAL, REGIONAL AND GLOBAL LEVELS

WHO will provide technical leadership in the management and coordination of the global poliomyelitis eradication effort until its completion. Success will depend on this being perceived as a universal challenge, and WHO will actively solicit the collaboration of as wide a spectrum of institutions and individuals as possible. Commitment from governments and individual political/community leaders will be essential. Financial and technical support will be required from multi- and bilateral development agencies, other international agencies, non-governmental organizations, technical institutions, universities, private and voluntary groups and concerned individuals.

While additional coordinating groups may need to be established at global level, emphasis in the beginning stages of the programme will be placed on coordination through the existing activities of the EPI Global Advisory Group and on coordinating groups established within countries and within Regions.

WHO activities associated with the polio eradication initiative will be conducted as part of the Expanded Programme on Immunization (EPI) in collaboration with other appropriate WHO programmes. Responsibilities for this initiative will be distributed at national, regional and global levels in the same manner as responsibilities for the EPI are distributed.

The most important activities will be those of national health authorities in strengthening their immunization programmes and in stopping the transmission of wild poliovirus within national boundaries. The prime responsibilities for planning, resource mobilization, donor coordination, training, implementation, monitoring, evaluation and research are national. WHO will collaborate in these activities through the office of the WHO Representative, where such an office has been established, and through support from WHO/EPI staff and consultants assigned at country, inter-country, regional and inter-regional levels.

Regional Offices will:

- provide technical support and coordination within the Region;
- prepare regional action plans based on the results of assessments of national programmes;
- support national managers in the areas of planning, donor coordination, training, monitoring, evaluation and research;
- place special emphasis on polio surveillance, making available as required reference laboratory services for the diagnosis of polio and/or the characterization of the poliovirus isolates;

- provide technical support to national programmes to adapt and develop computer software for management information systems (including disease surveillance);
- provide training to national laboratory staff.

The regional action plans will address research needs of regional scope, and Regional Offices will support national programmes in addressing these. Regions will engage in regional resource mobilization to the extent possible. Progress within Regions will be reviewed and discussed annually by regional EPI advisory bodies and by annual regional or sub-regional meetings of national programme managers. It will be reviewed periodically by the Regional Committees.

The global level will provide overall technical direction for this initiative. It will:

- provide leadership in resource mobilization and donor coordination;
- develop prototype training materials and technical support documents as required;
- promote the development and application of improved disease surveillance and programme monitoring and evaluation techniques;
- support Regional Offices and national programmes by providing expertise by assigning short and long-term staff and by providing funds, particularly to strengthen donor coordination, planning, training, supervision, monitoring and evaluation (including surveillance) and research;
- update and share with Regional Offices and countries at least twice a year global information on immunization coverage, disease incidence and other selected parameters, obtained from national managers through the Regional Offices;
- promote vaccine quality control activities so as to assure that all countries have the benefit of using polio vaccines which meet WHO requirements;
- promote the development and introduction of improved polio vaccines;
- develop a system of polio reference laboratories to which specimens can be sent from national level for poliovirus isolation, serological testing and/or poliovirus characterization;
- strengthen the capacities of national laboratories through training, provision of standard reagents and proficiency testing;
- promote operational research at national level, in collaboration with the Regional Offices, addressing programme priorities;
- ensure annual review of the global polio eradication initiative by the EPI Global Advisory Group, and periodic review by the WHO Executive Board and World Health Assembly;
- certify the global eradication of poliomyelitis.

V. RESOURCE REQUIREMENTS

The resource requirements projected below are over and above those which currently support the EPI. During the 1990's, as over 100 million children in developing countries are being immunized each year, the total cost of the programme estimated as US\$ 10.00 per fully immunized child (in 1988 dollars) will come to more than US\$ 1 billion per year. This figure can be as much as doubled if one considers the new vaccines which can be expected to be added to the programme and the growth in world population. For the most part, outside contributions will cover the costs of vaccines, cold chain equipment, syringes and needles and sterilization equipment. In the least developed countries, it is probable that a portion of operational costs will also need to be covered from outside resources.

Most of these costs are being met by developing countries themselves, but external support will continue to be needed, probably in the range of 20-30% of the total costs. The roughly US\$ 150 million per year being invested from external sources in the EPI in 1988 will need to grow to some US\$ 300 million in the early 1990's. The partners already engaged in the EPI, particularly UNICEF, multi- and bilateral development agencies and private and voluntary groups will need to increase and sustain their current contributions to meet this need.

The projections below are also for funds over and above those which are currently being provided to WHO/EPI for global programme operations. The EPI/Geneva now receives some US\$ 3.7 million in extrabudgetary support per year. The polio initiative requires an additional US\$ 10-15 million per year. Except for a small contribution from headquarters, AMRO's polio eradication activities are being supported by funds raised within the Region. AMRO's requirements, which have already been met through the early 1990's, are not included in the estimates provided below.

Estimated resource requirements are summarized in Table 3. No line items have been provided for social mobilization or rehabilitation given the expectation that they will for the most part be supported from community resources.

1989-1990

Staff requirements:

The primary need during this period is for additional international staff who can help assess the status of national programmes and contribute to programme planning (including donor coordination), monitoring and evaluation. Aided by the findings, they will help in further developing eradication strategies, in developing prototype training materials and in the further development and application of simplified computer-based management information systems at global, regional and national levels (see below).

Initial help will be sought largely through the use of short-term consultants, recruiting full time staff, however, as soon as suitable persons can be identified. The full-time staff who are recruited will be expected to constitute a majority of the core staff who will be required at least up to 1995.

A total additional core staff of some 20 professionals will be needed, in addition to secretarial staff. Efforts will generally be made to select individuals for inter-regional posts, providing the flexibility of transferring them between Regions as the needs of the Programme dictate. Five professionals will be based in Headquarters, five at Regional Offices and ten in countries within Regions, having inter-country responsibilities.

National professional staff will be recruited to supplement the work of the international staff. Efforts will be made to recruit young national staff who can profit from this experience for career development.

Short-term consultant services will also be required and are initially projected to total 10 person/years per year. Funds for administrative support and travel have also been budgeted.

Total core and consultant staff costs: US\$ 9 000 000.

In addition to the core staff and consultants, resources will be needed to support activities in the following areas:

Coordination meetings of regional and global advisory bodies and national programme managers:

Advisory bodies have already been established in the American and European Regions. They will be established in the remaining Regions during 1989. At present, an annual meeting of each regional advisory body is foreseen. Annual regional meetings of national programme managers will be convened, where possible in conjunction with the meeting of the regional advisory body. Two meetings will be required in the African Region, one in French and in English. The combined costs of the regional advisory body meeting with that of the national programme managers meeting is estimated at US\$ 75 000 per meeting. Excluding the American Region, this entails six annual meetings, for a total cost of US\$ 450 000 per year, beginning in 1989. There will also be the need for meetings of experts at global level to advise on specific aspects of the polio eradication initiative. Their recommendations will be considered by the EPI Global Advisory Group, which will remain the central advisory body for the global EPI. A total of US\$ 50 000 per year is budgeted for global meetings conducted in addition to the annual meeting of the EPI Global Advisory Group.

Total coordination meetings cost: US\$ 1 000 000.

Monitoring and surveillance:

Two major changes need to be introduced:

- First, national managers need to begin analyzing their data on a district by district basis. Pooled data for the country as a whole, whether it relates to immunization coverage or to disease incidence, will no longer suffice. In a number of countries, building an effective surveillance system will require regular visits to district level facilities. This proposal therefore includes the provision of US\$ 1 million to assure the availability of vehicles and fuel for this purpose.

- Second, in order to analyze and respond to district-level data in a timely fashion, simplified computerized management information systems are required at national level, and need to be linked as rapidly as possible to systems at more peripheral level as these are progressively introduced. Systems at regional and global level need to be compatible with the data being obtained and analyzed at national level.

A considerable amount of software development for the EPI is already being undertaken. Developmental work will need to be continuous, however, as these systems will evolve as improved software and hardware become available, and as the needs of national managers evolve. The major need during this period, however, will be for installation of software for national systems and training of national staff in its use. It is hoped that this can be accomplished in approximately 15 countries per year, at a cost of US\$ 10 000 per country. An additional US\$ 50 000 per year will be needed to continue the software development work, particularly linking national with district and peripheral systems, with the EPI being a component of the national management information system for primary health care.

Total monitoring and surveillance cost: US\$ 1 400 000.

Development of training materials and support for training courses:

The development and field testing of training materials is expected to proceed rapidly, given the developmental work which has already taken place in PAHO.

After the course materials for immunization programme staff have been developed and field tested, they will be introduced within the routine EPI training activities already ongoing within national programmes. As was done to introduce the original EPI materials, inter-country courses of national programme managers will be held in each Region (with the exceptions of the American and European Regions), with courses in both English and French being held within the African

Region. The cost per course is estimated to be US\$ 80 000. Special practical courses to permit surveillance supervisors to recognize clinical cases of poliomyelitis and to teach these skills to health workers in communities will also be needed. Five such courses are planned for 1989-90, at US\$ 60 000 per course.

The training for persons providing laboratory support, will focus on poliovirus isolation and strain differentiation, vaccine potency testing and serological tests for polio antibodies. Only a limited number of laboratories will be actively engaged in polio diagnostic work during this period, and only two courses, both inter-regional, are envisaged (at US\$ 60 000 per course).

Total training cost: US\$ 1 300 000.

Establishment of poliomyelitis reference laboratories:

Meetings will have to be convened to obtain consensus on various standardized test procedures which will form the basis for training staff (1 meeting per year, US\$ 50 000 per meeting). In addition, extra staff, supplies and equipment will be needed to permit the reference laboratories to perform the diagnostic tests required. US\$ 500 000 has been budgeted for these purposes.

Total polio reference laboratory cost: US\$ 600 000.

Research and development:

US\$ 500 000 will be used to support the development of improved laboratory diagnostic tests for poliomyelitis which can be reliably used in laboratories with relatively limited capabilities. These funds provide for the purchase of specialized equipment and for the hiring of extra laboratory staff. US\$ 600 000 is provided to pursue operational research concerning cost-effective methods of interrupting the transmission of wild poliovirus.

The major questions being asked concerning the optimal formulation of oral polio vaccine require expensive and time-consuming field studies and will only be possible in a limited number of sites. Support for two studies, at a cost of approximately US\$ 200 000 each, is requested in addition to US\$ 200 000 to support the further development of improved vaccines. Support is also required to accelerate the testing and introduction of new oral polio vaccines, but probably will not be needed for field trials until after 1990.

Total research and development cost: US\$ 1 700 000.

Total resource requirements 1989-1990: US\$ 17 000 000.

(including programme support cost)

1991-1995

While the nature of the activities will be modified to meet the changing needs of the programme, the total resources required, per year, will remain approximately the same in terms of international staff and in the areas of training, monitoring and surveillance. Increased resources will be needed for country assessment activities. Recruitment of national professional staff will increase and cost of staff participation in coordination meetings will increase. Travel costs are projected to increase, from US\$ 500 000 per year during 1989-1990 to US\$ 600 000 per year. Laboratory costs will also increase as more national laboratories are developed. While fellowships for laboratory staff have not been projected for the period 1989-1990, they will be used as a training method in 1991-1995. In addition, proficiency testing programmes will become increasingly developed during this period. Laboratory support costs will nearly double from US\$ 300 000 per year to US\$ 600 000 per year during 1991-1995. Support for research and development will increase, from US\$ 850 000 per year to US\$ 1 000 000 per year during the period 1991-1995.

Increased resources will be needed to support specific polio eradication strategies of national programmes during this period. These will mainly be covered by bilateral or multilateral support from organizations other than WHO, and are not included in these estimates.

Total costs, 1991-1995: US\$ 60 000 000.

(including programme support cost)

1996-2000

This is the period during which an increased need for WHO managed resources can be envisaged, as specific intensive eradication strategies are implemented in countries which might otherwise not achieve the goal, relying in part on the help of short and long-term international consultants. Realistic estimates of these needs will be developed during the period 1991-1995. It can be anticipated, however, that personnel costs will be at least two-thirds more than what has been projected for the period 1991-1995.

Total costs, 1996-2000: US\$ 78 000 000.

(including programme support cost)

Table 2. Estimate of additional* EPI resource requirements for eradication of poliomyelitis, in 1988 US\$, 1989-2000.

Component	1989-1990 (2 years)	1991-1995 (5 years)	1996-2000 (5 years)
PERSONNEL			
Staff/Consultants	6 000 000	15 000 000	20 000 000
National Prof. Staff	1 500 000	7 500 000	20 000 000
Administrative support	500 000	2 500 000	3 000 000
Travel	1 000 000	3 000 000	4 000 000
Subtotal	9 000 000	28 000 000	47 000 000
COORDINATION			
Meetings	1 000 000	3 000 000	3 000 000
Subtotal	1 000 000	3 000 000	3 000 000
MONITORING AND SURVEILLANCE			
Transport	1 000 000	10 000 000	10 000 000
Software installation	300 000	750 000	750 000
Software development	100 000	250 000	250 000
Subtotal	1 400 000	11 000 000	11 000 000
TRAINING			
Development of educational materials	400 000	400 000	400 000
Courses for			
- programme staff	700 000	2 000 000	2 000 000
- laboratory staff	200 000	600 000	600 000
Subtotal	1 300 000	3 000 000	3 000 000
LABORATORY SUPPORT			
Meetings	100 000	500 000	500 000
Supplies	500 000	2 000 000	1 000 000
Fellowships	-	500 000	500 000
Subtotal	600 000	3 000 000	2 000 000
RESEARCH & DEVELOPMENT			
Devel. of laboratory diagnostic methods	500 000	500 000	-
Operational studies	600 000	2 500 000	2 000 000
Vaccine development	600 000	2 000 000	1 000 000
Subtotal	1 700 000	5 000 000	3 000 000
TOTAL w/o PSC**	15 000 000	53 000 000	69 000 000
TOTAL with PSC	17 000 000	60 000 000	78 000 000

* Resource requirements for routine EPI operations from external sources are estimated to range from US\$ 300 million to US\$ 600 million per year during the 1990's. The figures in this Table are over and above what is required for routine operations.

** PSC: Programme support costs.