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ERADICATION OF INDIGENOUS TRANSMISSION  
OF WILD POLIOVIRUS IN THE AMERICAS

PLAN OF ACTION  
July 1985

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## PREFACE

The Director of the Pan American Health Organization has appointed a Technical Advisory Group (TAG) to advise the Organization on the acceleration of the Expanded Program on Immunization and the eradication of the indigenous transmission of wild poliovirus in the Americas. This group is composed of the following five members:

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Chief, Office of International Affairs  
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Santiago, Chile
- Dr. Donald A. Henderson (Chairman)  
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Vice Secretary of Health Services  
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Secretary, National Secretariat of Basic  
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The Technical Advisory Group held its first meeting in Washington, D.C. on 11-12 July 1985 to discuss and revise the Plan of Action for the eradication of indigenous transmission of wild poliovirus in the Americas. The proposed Plan of Action is contained in the following pages.



## 1. INTRODUCTION

The Expanded Program on Immunization (EPI) has its basis in resolution WHA 27.57, adopted by the World Health Assembly in May 1974. General program policies, including the EPI goal of providing immunization services for all children of the world by 1990 (resolution WHA 30.53, 1977) were endorsed by resolution CD 25.27 of the Pan American Health Organization (PAHO) Directing Council in September 1977.

The long-term objectives of the EPI are to:

- reduce morbidity and mortality from diphtheria, whooping cough, tetanus, measles, tuberculosis and poliomyelitis by providing immunization services against these diseases for every child in the world by 1990 (other selected diseases may be included when and where applicable);
- promote countries' self-reliance in the delivery of immunization services within the context of comprehensive health services; and
- promote regional self-reliance in matters of vaccine production and quality control.

Since the EPI was launched in the Region of the Americas in 1977, immunization coverages have improved considerably. In 1978, less than 10% of the children under one year of age lived in countries where coverage with the EPI vaccines was at least 50%; by 1984, nearly 50% of the children in this age group lived in countries with coverage of at least 50% for DPT vaccine, of over 50% for measles and BCG vaccines, and of over 80% for polio vaccine.

The impact of the high coverages with polio vaccine can be seen in Figure 1, which shows the annual reported incidence of poliomyelitis in the Region of the Americas during the period 1969-1984, and in Figure 2, which shows the absolute number of cases reported each year during the same period.

Figure 1. Annual reported incidence of poliomyelitis (per 100,000 population), Region of the Americas, 1969-1984

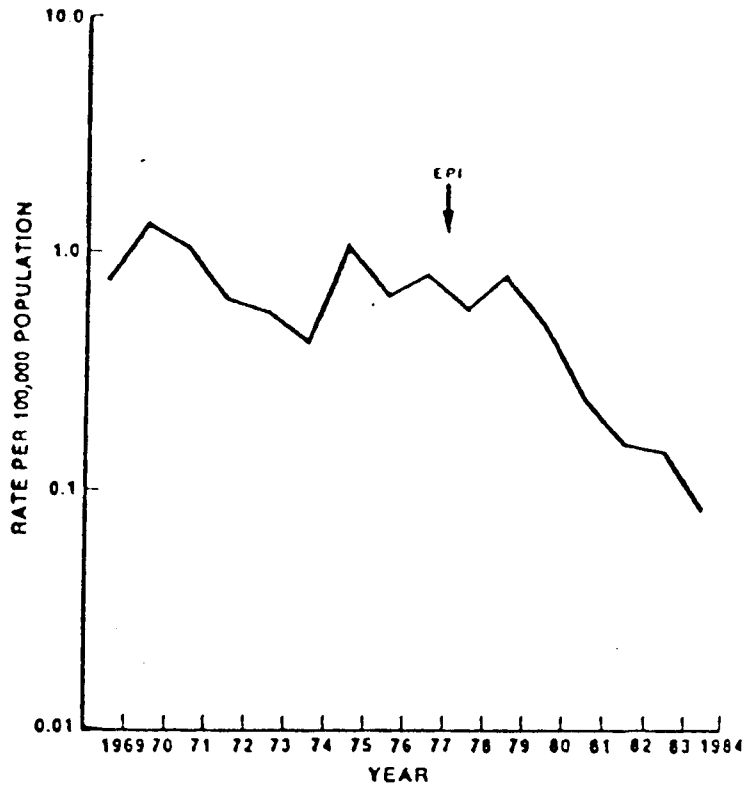


Figure 2. Annual number of reported cases of poliomyelitis, Region of the Americas, 1969-1984

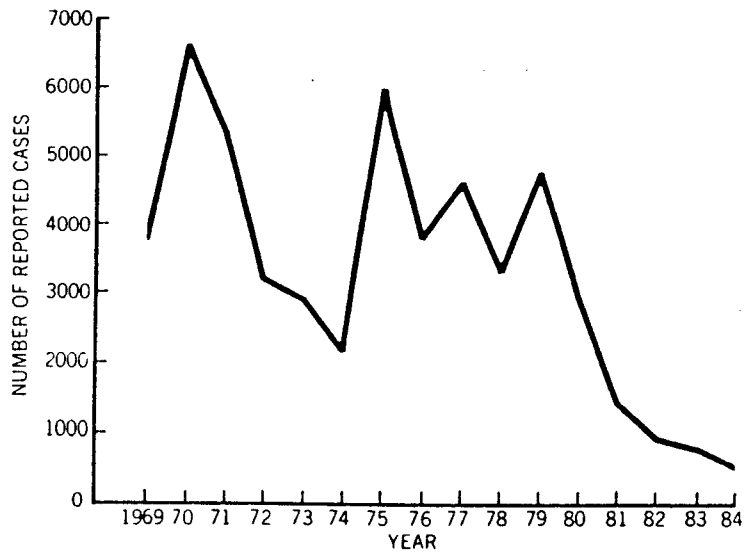


Table 1 gives a breakdown of the annual number of reported cases by country between 1975 and 1984. In 1978, 11 countries in the Region reported no cases of poliomyelitis. By 1984, 19 countries had reported no cases of poliomyelitis, almost double the number of countries reporting no cases only six years earlier.

This impressive, rapid reduction in the disease burden resulting from increased coverages with the polio vaccine has paved the way for the decision to eradicate transmission of wild poliovirus in the American Hemisphere by 1990.

In keeping with this, on 14 May 1985 the Director of PAHO announced PAHO's commitment to this goal and called for support from all member countries and other international agencies. At the time of the announcement, many of the member countries and the international agencies gave their endorsements to the achievement of eradication of indigenous transmission of wild poliovirus in the Hemisphere by 1990.

The Director of PAHO emphasized that activities related to the eradication of diseases preventable by immunization must be considered within the context of the EPI, directed at the control of the six priority diseases.

The proposed Plan of Action aims at three primary objectives:

- a) To promote the overall development of the Expanded Program on Immunization in the Region, to speed up the attainment of its objectives.
- b) To eradicate indigenous transmission of wild polioviruses in the American Region by the year 1990.
- c) To set up a surveillance system at regional and national levels, so that all suspected cases of poliomyelitis are immediately investigated and appropriate control measures to stop transmission are rapidly implemented.

The succeeding sections of this document detail the proposed Plan of Action.

## 2. STRATEGIES AND TECHNICAL COMPONENTS

The primary prerequisite to achieve the stated objectives will be the level of national political commitment, as expressed by:

- . Approval by the PAHO Directing Council in September 1985 of the Resolution to eradicate indigenous transmission of the wild poliovirus from the Americas by 1990;
- . Legislative action by member countries, whenever necessary;
- . Availability and allocation of national resources for the effort.

Table 1. Number of poliomyelitis cases  
in the Americas, by country, 1975-1984

Country	Mean number of cases/year		Number of cases			
	1975-1977	1978-1980	1981	1982	1983	1984
<b>NORTHERN AMERICA</b>						
Bermuda	-	-	-	-	-	-
Canada	1	4	-	-	-	1
United States	13	20	7	9	12	7
<b>CARIBBEAN</b>						
Anguilla	-	-	-	-	-	-
Antigua and Barbuda	-	-	-	-	-	-
Bahamas	-	-	-	-	-	-
Barbados	-	-	-	-	-	-
British Virgin Is.	-	-	-	-	-	-
Cayman Islands	-	-	-	-	-	-
Cuba	-	-	-	-	-	-
Dominica	-	-	-	-	-	-
Dominican Republic	63	107	72	70	7	-
Grenada	-	-	-	-	-	-
Guadeloupe	-	-	-	-	-	-
Haiti	25	16	35	35	62	63
Jamaica	-	-	-	58	-	-
Martinique	-	-	-	-	-	-
Montserrat	-	-	-	-	-	-
Netherlands Antilles	-	-	-	-	-	-
Puerto Rico	-	-	-	-	-	-
Saint Lucia	-	-	-	-	-	-
St. Martens and St. Bartholomew	-	-	-	-	-	-
St. Kitts-Nevis	-	-	-	-	-	-
St. Vincent and the Grenadines	-	-	-	-	-	-
Trinidad and Tobago	-	-	-	-	-	-
Turks and Caicos Is.	-	-	-	-	-	-
U.S. Virgin Islands	-	-	-	-	-	-
<b>CONTINENTAL MIDDLE AMERICA</b>						
Belize	-	2	-	-	-	-
Costa Rica	-	-	-	-	-	-
El Salvador	38	23	52	16	88	19
Guatemala	39	116	42	136	208	17
Honduras	78	101	18	8	8	76
Mexico	710	966	186	98	232	137
Nicaragua	26	36	46	-	-	-
Panama	-	-	-	-	-	-
<b>TROPICAL SOUTH AMERICA</b>						
Bolivia	138	121	15	10	7	-
Brazil	2,807	1,854	122	69	45	82
Colombia	525	305	576	187	88	18
Ecuador	45	10	11	11	5	-
French Guiana	-	-	-	-	1	-
Guyana	2	-	-	-	-	-
Paraguay	74	20	60	71	11	3
Peru	136	120	149	150	111	102
Suriname	-	-	-	1	-	-
Venezuela	44	34	68	30	-	-
<b>TEMPERATE SOUTH AMERICA</b>						
Argentina	2	22	5	10	26	-
Chile	-	-	-	-	-	-
Uruguay	6	-	-	-	-	-
<b>Total</b>	<b>4,772</b>	<b>3,877</b>	<b>1,464</b>	<b>969</b>	<b>911</b>	<b>525</b>
<b>Number of countries reporting cases</b>	<b>19</b>	<b>18</b>	<b>16</b>	<b>17</b>	<b>15</b>	<b>11</b>
- no cases						



In order to meet the goal of eradication of indigenous transmission of wild poliovirus in the Americas by 1990, it will be necessary to intensify all components of the EPI strategies presently being implemented and to adapt many of the EPI approaches. Other essential elements are coordination of international agencies at the Regional and country levels, and availability of sufficient funds from both national and international sources to cover all activities related to this goal.

The key strategies to be adopted in this effort are:

1. Mobilization of national resources;
2. Achievement and maintenance of vaccine coverages of greater than 80% of the target population;
3. Surveillance activities adequate to detect promptly all cases of poliomyelitis, with thorough investigations and institution of control measures;
4. Laboratory diagnostic services available to all countries, to permit laboratory studies of all probable cases of poliomyelitis reported;
5. Information dissemination within countries and throughout the Region;
6. Identification of research needs with subsequent funding for execution;
7. Development of a certification protocol to declare the countries and the Region free of indigenous transmission; and
8. Evaluation of all ongoing program activities.

For each of the key strategies, a series of technical components are recommended to ensure their success.

## 2.1 Mobilization of Country Resources

Recognizing the limited resources available within the Ministries of Health in many of the countries, it will be crucial to concentrate efforts on the mobilization of all country resources to complement those available.

To this end, inter-sectorial coordination will be essential to estimate the potential of existing resources and to mobilize the necessary additional resources. The education and agriculture sectors, social security and other organizations will be essential elements in this endeavour.

Finally, communities and community groups will be called on to collaborate and add their resources and talents towards the achievement of the objective. Private voluntary organizations, religious groups, and mass media organizations will also be tapped to assist in promotional activities, distribution of supplies and personnel and participation in vaccination activities. Cooperative strategies will be developed for combined actions of several countries and technical cooperation between countries for purposes of planning, implementation and evaluation of programs, particularly in the areas of outbreak investigation and control, as well as laboratory support.

## 2.2 Immunization Activities

### 2.2.1 Classification of countries by level of poliomyelitis activity and vaccination coverage

Countries will initially be classified into the following two groups:

- GROUP I: Polio-infected countries. Those countries reporting indigenous cases due to transmission of wild poliovirus within the previous three years.
- GROUP II: Polio-free countries. Those countries reporting no indigenous cases due to transmission of wild poliovirus within the previous three years. This group will be subdivided into the following two categories:

Group II-A: Higher-risk countries. Those countries which have had vaccination coverages of less than 80% of children under one year of age in any of the previous three years.

Group II-B: Lower-risk countries. Those countries which have maintained vaccination coverages of greater than or equal to 80% of children under one year of age in each of the previous three years.

### 2.2.2 Vaccination tactics

The vaccination tactics recommended to achieve the goal will vary depending upon each country's level of poliomyelitis activity, existing vaccination coverage and health infrastructure. Trivalent oral poliomyelitis vaccine (TOPV) will be the primary means of achieving eradication of indigenous transmission of wild poliovirus in the Americas. The appropriate role of inactivated poliomyelitis vaccine (IPV) in the polio eradication effort will be reviewed on a continuing basis.

National immunization days, to be held at least twice a year, will be recommended for countries classified in Group I. Their success will require intensive planning of the logistics of both supply and demand. The use of the mass media and professional advertising firms to sell the concept of vaccination will be encouraged. Mobilization of all resources, both intra- and extra-sectorial, and participation of non-governmental sectors in these efforts will be essential for success. This tactic should be viewed as an ad hoc measure, to be gradually replaced by regular immunization services performed routinely by health services.

Advantage should be taken of the national immunization days to administer DPT and measles vaccine as well.

Countries classified in Group II will need to maintain coverages of at least 80% of the target population by reinforcing routine immunization services and maintaining high levels of surveillance.

### 2.2.3 Logistical support

All countries should ensure that the vaccines used in the program meet WHO requirements. Vaccine distribution will be a key component of immunization activities. Efficient distribution systems will be essential to ensure that vaccines are available at the delivery points on the scheduled days. To guarantee that immunization activities will not be interrupted, a stockpile of vaccines will be maintained at the Regional level for use in case of emergency. Manufacturers will be requested to have 5 million doses on hand for emergency use at all times. PAHO will oversee the inventory of these emergency stocks and allocate distribution when needed. Countries are expected to order vaccine supplies as needed on a routine basis.

By the time country work plans are prepared, cold chain deficiencies will be identified and the plans will reflect the needs to be fulfilled. Cooperation from donor agencies should include the procurement and maintenance of necessary cold chain equipment. To address the recognized problems with cold chain equipment maintenance, countries will be encouraged to design cold chain systems that rely upon low-maintenance equipment.

### 2.2.4 Training

There will be a major emphasis on training personnel in the additional components of program operations critical for success. To assist in this endeavor, PAHO will prepare a manual on the technical basis of poliomyelitis eradication for distribution to all member countries. This manual will serve as a prototype for countries to produce country-specific manuals adapted to local circumstances. PAHO will provide technical assistance to the countries for the adaptation of the manual and for its production and distribution, as well as for the planning and execution of training courses as needed.

### 2.3 Epidemiological Surveillance and Outbreak Control

In view of the relatively small number of cases being reported annually in the Region, it is urged that every suspected case be investigated immediately. This is one of the most critical components of the eradication effort. Case investigation should be carried out according to the definitions set out in the manual referred to in section 2.2.4. For operational purposes, the following provisional definitions are proposed:

- Suspected poliomyelitis case. Any acute onset of paralysis in a person less than 15 years of age.
- Probable poliomyelitis case. Any acute onset of flaccid paralysis without sensory loss or other identified cause.
- Confirmed poliomyelitis case. Any probable case with laboratory confirmation or linkage to another probable or confirmed case or presence of residual paralysis 60 days after onset.

### 2.3.1 Case identification and reporting

Surveillance will be both active and passive. All potential sources of notification of suspected cases of poliomyelitis in the countries will be contacted and incorporated in the surveillance activities. Weekly calls to all facilities that might see acute or convalescent cases should be part of the surveillance mechanism. The types of facilities to be called include: all acute care hospitals (public and private, general and specialized) and rehabilitation centers. Once suspected cases are identified, thorough community investigations for additional cases will be conducted. Each country will telex to PAHO weekly reports of probable and confirmed cases of poliomyelitis.

In the event of an outbreak, all countries in the Region will be notified immediately by telex from PAHO/Washington, so that traveller's advisories can be issued.

PAHO will ensure that expert international personnel are available to help strengthen epidemiological surveillance in the Region. In Group I countries these personnel will be made available to assist countries in developing or improving surveillance activities, and to review case records of other diseases included in the differential diagnosis of poliomyelitis, such as Guillain-Barré Syndrome (GBS) and transverse myelitis.

In Group II countries, monetary rewards may be offered to individuals finding a case of poliomyelitis. PAHO personnel will be available to assist in confirming the validity of the reports. These personnel will also be available to assist in performing evaluations of facilities that are likely to see polio cases, following up diagnosed cases of GBS (to verify that the distinction between GBS and polio was clearly present), and instituting the reward mechanism for cases found.

### 2.3.2 Outbreak investigation and control

Each suspected case will be investigated immediately. Detailed standardized case investigation forms will be designed and implemented. For operational purposes, the definition of an outbreak is the occurrence of one probable or confirmed case of poliomyelitis. Upon identification of a probable or confirmed case, the Ministry of Health should make an official announcement alerting all health personnel and the general population to the situation in order to increase public awareness of the need for immunization, and the need to report all suspected cases promptly. The PAHO country office should also be notified immediately.

PAHO will offer assistance in case investigation and outbreak control by providing investigation teams which will be mobilized within 24 to 48 hours of notification of a case to participate in the investigation of the outbreak, the search for additional (secondary) cases, and implementation of control measures. Thorough investigations into the source of the cases will be conducted.

Adequate stocks of TOPV must be available to the countries to mount control measures immediately. The control measures will aim to provide TOPV to all persons at risk; in Group I countries this will usually be children less than 5 years of age. Due to the rapid, wide and silent spread of the poliovirus, immunization is recommended not just of the surrounding neighborhood, but also of a wider area.

Part of outbreak investigation and control will be the rapid identification of poliovirus type. Upon identification of a probable case, specimens will be collected immediately and sent to the nearest laboratory for virus isolation studies. In addition, the probable epidemiological classification of the case will be determined within 24-48 hours of notification. In the event of a probable vaccine-associated case, immediate control measures will not be required.

Reports on all outbreaks and case importations will be published and disseminated. When intra-regional importation has occurred, the country of origin of the case will be notified and an investigation team will be available to assist in the investigation.

#### 2.4 Laboratory Support

##### 2.4.1 Support to surveillance activities

A major component of surveillance activities will be laboratory confirmation of probable cases of poliomyelitis. For all probable cases, specimens will be collected for isolation studies. Oligonucleotide mapping or other testing of the isolates will be performed to attempt confirmation of the origin of the virus. The more sophisticated laboratories in the network will provide this reference service to the Region. The close participation of the laboratories in the epidemiological evaluation process is imperative. If clinically and epidemiologically compatible cases of poliomyelitis are identified but isolation studies are either negative or yield a non-polio enterovirus, original specimens and the non-polio enterovirus isolate will be sent to reference laboratories for further study.

##### 2.4.2 Laboratory evaluations

All countries should have access to laboratory facilities for poliomyelitis studies and PAHO will assist with the necessary laboratory support. A team of internationally recognized virologists, under the auspices of PAHO, will evaluate laboratory facilities available in the Region to identify those to be included in a Regional network. This process will be completed by December 1985. In addition, a network of laboratory personnel available to participate in the investigation team assessments will be developed, thereby permitting a laboratory person to be a member of all teams.

Laboratory and serological capabilities to perform poliovirus and other enterovirus isolation studies will be identified. It is expected that six or seven laboratories in the Region will be certified as reference laboratories.

They will be selected from the WHO collaborating centers and from national laboratory networks and will serve as technical resources for assisting countries to develop their own laboratory facilities.

Capabilities to perform serologic studies will also be identified in the Region, and logistic systems will be strengthened to provide all countries access to the services. Capabilities for complement fixation and neutralization titer assays will be developed. It is expected that most countries will develop capabilities to perform serologic studies on probable cases of poliomyelitis. Capabilities to perform more sophisticated viral identification studies (nucleic acid hybridization and oligonucleotide mapping) will be developed in two or three reference laboratories.

#### 2.4.3 Development of Regional Laboratory Network

In keeping with the general PAHO policy of developing networks of national institutions for technical cooperation among developing countries, a regional laboratory network will be formed. The development of the network of laboratories will involve strengthening the necessary logistics system for both the transport of specimens and the distribution of necessary supplies such as reagents. A continual supply of standardized reagents for the serologic, virus isolation, and genetic characterization studies will be ensured. The CDC in Atlanta will be requested to assist in the development of the laboratory networks and to certify laboratories as reference centers.

For countries without laboratories, reference laboratories will be identified for their assistance. The reference laboratories will assist countries to develop in-country virology support. The reference laboratories will confirm the results of the country laboratories. A regional laboratory supervisory system will guarantee consistent, high quality testing and reliability of results.

As part of the development of the laboratory network, a manual will be produced covering: tests to be performed on all suspected cases, testing procedures, appropriate specimens, methods of collection of specimens, shipping procedures, handling of specimens, quality control procedures, data collection and data processing. This manual will be ready by November 1985 and will be distributed to all participating laboratories.

Training needs will be addressed at the various levels through the development of a workshop for participating laboratory personnel in the network. The first course will be held by February 1986, following the identification of the laboratories.

In addition to the laboratory studies related to surveillance, there is a need to develop further laboratory support for potency testing of vaccines. The laboratories equipped for poliovirus isolation studies will be used as reference centers for testing of vaccine potency, as similar techniques and materials are needed.

## 2.5 Information Dissemination

### 2.5.1 Publications

At the Regional level, the PAHO EPI Newsletter will contain a section on poliomyelitis in all issues. This section will include information on the current epidemiology of polio in the Region; the number of cases reported in the interval since the previous issue, by week of reporting and by country; individual case studies of outbreaks and investigations; issues related to the eradication effort; and topics of interest in polio research. Information on polio activities in the Region will be disseminated monthly. It is expected that newsletter circulation will increase so that all health facilities in the Region will receive copies. Information should also be disseminated through other PAHO publications.

Countries will be encouraged to include a section on poliomyelitis in their national epidemiological bulletins, with distribution to all health care workers in the network.

Periodic reviews of the literature on poliomyelitis will be distributed by PAHO throughout the Region.

### 2.5.2 Information exchange meetings

To maintain momentum and to facilitate communication in the Region, meetings of EPI program managers for Latin American and English speaking Caribbean countries will be held as often as necessary to discuss progress made and problems encountered. These meetings will serve as a forum for mutual assistance and information dissemination and will be attended by technical experts to aid in the resolution of problems encountered. The meetings will consist of country presentations, discussions related to issues raised during the country presentations, and presentations of updates in the field. Outputs of the meetings will include recommendations of the working groups to the countries on strategies to resolve the problems encountered. Findings and recommendations of the meetings should be published and disseminated in the Region.

## 2.6 Identification of Research Needs

### 2.6.1 Advisory group review

Recognizing that questions remain to be addressed in the field of poliomyelitis eradication, both in technical and operational areas, support for research will be provided. Research needs identified by the Technical Advisory Group (TAG) will be implemented within the first two years of the project. It is also recognized that questions will continue to arise as some problems are solved and others appear in their place. Participation in addressing research needs will be encouraged by all member nations.

The Technical Advisory Group (See section 3.2) will review ongoing activities and identify areas for research. This will include identification of funding sources for grants, review of protocols and review of research results. The mechanism to initiate research once areas have been identified will be facilitated by PAHO.

#### 2.6.2 Possible areas for research

Some of the issues to be addressed immediately include:

- strategies and tactics to achieve optimal coverages;
- reasons for dropouts and strategies to reduce dropouts;
- optimal surveillance techniques to detect all potential cases, including vaccine-associated ones;
- criteria for certification of eradication of wild poliovirus circulation;
- simpler diagnostic methods; and
- improved inoculation procedures and equipment for injectable vaccine.

#### 2.7 Certification Protocol

The certification of eradication of indigenous transmission of wild poliovirus for the Americas will be accomplished when the following conditions have been met: (1) Three years have elapsed without identification of any indigenous cases of poliomyelitis in the Region, in the presence of adequate surveillance; (2) Extensive case search by international investigation team does not identify any cases having onset in the three years preceding the visit; and (3) In the case of an importation, there are no secondary cases identified within one month of the date of onset of the illness in the imported case.

An international certification commission will review criteria for certification based on findings of studies conducted and the need to include other criteria to detect wild virus. Vaccination activities should continue until such time as global eradication is achieved.

#### 2.8 Evaluation

Recognizing the critical nature of evaluation for monitoring success and detecting and resolving problems, there will be increased emphasis on the EPI evaluation component. International observers will participate in all country evaluations and reports of findings will be widely distributed.

Because of the difficulties inherent in routine information systems, coverage surveys will be performed in most countries. Included in the coverage surveys will be questions on reasons for compliance and non-compliance. Results of these surveys will be used as a basis for modifications of strategies to optimize the efficacy of interventions.



In addition to evaluations of country program operations, the laboratory network will be evaluated annually to guarantee that the high level of support needed is met. Part of the laboratory evaluation process will include a retesting of original specimens by the reference laboratories, as well as reference specimens sent by the reference laboratories to the country laboratories for testing.

### 3. ORGANIZATION AND ADMINISTRATION

#### 3.1 Country Level

Each country is strongly urged to develop an overall plan for the EPI and to sign a letter of agreement with PAHO and other collaborating agencies. In the agreement, the National Work Plans should identify additional cooperation needed from PAHO and other participating agencies. All participating agencies in a given country should sign the agreement. Those countries that will require long-term technical advisors should approve their placement in the agreement and commit to a prioritization of the effort in terms of resource allocation.

In addition, technical cooperation will be provided for the drafting of country work plans. Full inventories of existing resources will be made, with identification of needs to be complemented in order to maximize inputs into the program activities. Placement of long-term technical advisors will be considered for the countries in Group I.

It is critical that seed funding be available at the time of design of the plans of action and signing of agreements.

At the time of preparation of the national work plans, participation of other international agencies will be encouraged to ensure the necessary level of donor coordination. As each donor agency has its own mandate, the presence of their representatives will ensure that the individual mandates are met and thereby avoid the all too common duplication of efforts that have occurred when there are independent project designs. The National Work Plans will identify the roles of all of the participating agencies in the country's effort.

All resources necessary to achieve the goal of eradication will be identified in the plans of action, with high priority given to the acquisition of these resources.

Countries will be requested to appoint an individual in charge of the polio eradication effort as a member of the central-level EPI unit. This person will be supervised by the national EPI program manager (or may be the same individual), and will have full responsibility for all components of the polio eradication effort, drawing upon resources made available to the EPI unit.

Within each country, all activities in the eradication effort should be under the guidance of the national EPI office to strengthen implementation of the activities and facilitate achievement of the overall EPI objectives. This office will oversee the eradication activities at all levels; ensure that coordination with laboratories is a high priority, that training needs are identified, and that courses addressing these needs are organized. This office will serve as the focal point for identification of all external cooperation and coordination of extra-sectorial assistance.

### 3.2 External - International Participation

To assist in guiding the activities of the eradication effort a Technical Advisory Group (TAG) will be formed, composed of experts in the field of immunizations and polio (see Annex V for terms of reference). The TAG will be composed of a core of five individuals, and will call on additional experts as needed to address special problem areas. It is important that at least one member of the TAG be a member of the EPI Global Advisory Group (GAG), in order to provide the necessary coordination with global EPI activities. The TAG Chairman or another representative of the group will participate in coordinating meetings with any other agencies or organizations involved in the same effort.

The role of the TAG will be to advise on technical components of the program. Strategies to achieve required vaccine coverages will be reviewed. The recommendations for vaccination schedules and the choice of vaccines will be reviewed on an annual basis. The TAG will assist in the identification of research needs, oversee the progress of the studies under way, and review protocols and results. The TAG will meet as often as necessary (quarterly or semi-annually or annually) to review progress and problems encountered. Recommendations of the TAG will be published and distributed throughout the Region. The PAHO EPI program office will serve as Secretariat to the TAG. The first meeting of the TAG should be held by July 1985, to review this Plan of Action before the Directing Council meeting.

To ensure the coordination of all international agency inputs, an Interagency Coordinating Committee with representation from all of the international agencies (e.g. UNICEF, Rotary, AID, IDB, World Bank, CIDA and the Bellagio Task Force) will participate in the eradication effort. This committee will meet as frequently as necessary (quarterly or semi-annually or annually) to review progress and the needs for additional assistance. The Coordinating Committee will secure interagency participation in the country planning stage to guarantee the coordination of donor inputs into the countries. The first meeting of the Coordinating Committee will be held by September 1985 to review the Regional Plan of Action and identify the types of assistance each of the agencies can provide in the effort. The PAHO EPI program office will serve as Secretariat to the Coordinating Committee.

As a further step to ensure the coordination of interagency assistance, a letter of agreement between the international agencies and PAHO should be signed after discussion of the Plan of Action. This agreement will define the

roles of each participating agency. In this manner, when additional needs are identified, the agencies appropriate to respond will have been pre-identified.

### 3.3 Internal - PAHO

The Regional EPI office will coordinate all activities related to the eradication effort. All reports and requests from the field for assistance will go through the EPI office, which will in turn coordinate assistance as needed from other units within PAHO. This is critical to ensure a consistent, coordinated effort in the Regional activities.

Technical cooperation in all areas of program operations will be available through PAHO and its member countries. Assistance of expert consultants from outside the organization will be provided as needs arise and may include epidemiologists, virologists, laboratory technicians, cold chain specialists, mass media experts in health education and economists.

It is estimated that 10 or 11 epidemiologists/technical advisors will need to be placed at the country level in countries classified as Group I. These advisors will preferably be nationals and will assist the Ministries of Health (MOH) with the planning and implementation of the eradication effort activities.

The country level personnel will work closely with counterparts in the MOH for the eradication effort.

At the sub-regional level (inter-country), seven epidemiologist posts are needed (five of which are already available) to serve as technical advisors on an international basis and to provide support and supervisory assistance to the in-country personnel (Appendix II). They will assist and cooperate in assessing needs for special intervention in the countries under their jurisdiction, participating in the investigation teams' classification visits, and providing direct technical cooperation when needed.

In addition to the country and sub-regional level personnel, there is a need for additional support personnel available to the EPI program office at the Regional level. This will include support of virologists (with extensive laboratory skills) to assist in the development of the laboratory network in the region (including training, supervision, supplies and quality control). An additional epidemiologist is also needed to assist in the coordination of activities related to epidemiological surveillance, outbreak investigation, immunization strategy design, and provision of supervisory assistance to the sub-regional advisors. The anticipated increase in data collection and processing will require additional statistical support.

4. FUNDING AND FINANCIAL COMPONENTS

4.1 Levels of Funding

In order to meet the objectives by 1990, it is expected that approximately US\$110 million will be needed. Approximately two-thirds of this amount will be provided by the member nations for their individual efforts and one-third will be sought from international donor agencies. The additional costs related to certification will be of a lower magnitude, and will be calculated as program implementation gets underway. Monies will be available at the time of design of the country plans of action to permit the immediate implementation of activities. Projected external costs of components of the eradication effort are as follows:

<u>Projected Costs</u>	<u>Total US\$</u>
Personnel . . . . .	\$ 7,100,000
Administration, Information, Documentation . . . . .	1,100,000
Vaccine . . . . .	10,773,000
Meetings . . . . .	950,000
Laboratories . . . . .	550,000
Training . . . . .	2,000,000
National Mobilization Activities .	5,250,000
Promotional Activities . . . . .	3,750,000
Cold Chain . . . . .	3,000,000
Evaluations . . . . .	2,000,000
Research . . . . .	2,000,000
Contingency Funds . . . . .	<u>6,000,000</u>
 Total External Funding . . . . .	 \$44,473,000 =====

A more detailed cost breakdown and preliminary financial analysis are presented in Appendices III and IV.

When individual country plans are designed, an economist should participate in costing the program. Cost figures will be identified and will include salaries for additional personnel, transportation costs (including airfares), per diem costs, expected expenditures for investigation of identified suspected cases, vehicles, gasoline, vaccine, cold chain equipment, and laboratory development costs (including costs for reagents, transportation and shipping of specimens). All recurrent and capital expenditures should be taken into account in the program design. Budgets will also include the cost of media time and production of educational materials.

PAHO will coordinate with all participating agencies to procure the necessary funding to guarantee the achievement of this goal, and could serve as the coordinating agency for all of the financial assistance provided to the effort. Assistance from the Bellagio Task Force will be sought to help identify additional funding sources. It is expected that by the time of the Directing Council Meeting in September 1985, commitments to cover estimated needs for at least the first year of the program will already be identified.

It is important to assure that funds which are committed are allocated and available in a short time to permit rapid implementation of the targeted activities.









APPENDIX I

PRELIMINARY CLASSIFICATION OF COUNTRIES IN THE AMERICAS  
ACCORDING TO POLIOMYELITIS ACTIVITY AND VACCINATION COVERAGE

GROUP I: Polio-infected countries. Those countries reporting indigenous cases due to transmission of wild poliovirus within the previous three years.

Argentina	El Salvador*	Mexico*
Bolivia*	French Guiana	Paraguay*
Brazil*	Guatemala*	Peru*
Colombia	Haiti*	Suriname
Dominican Republic	Honduras*	Venezuela
Ecuador*	Jamaica*	

\* Countries where in-country technical advisors may be placed.

GROUP II: Polio-free countries. Those countries reporting no indigenous cases due to transmission of wild poliovirus within the previous three years. This group will be subdivided into the following two categories:

Group II-A: Higher-risk countries. Those countries which have had vaccination coverages of less than 80% of children under one year of age in any of the previous three years.

Anguilla	British Virgin Is.	Nicaragua
Bahamas	Costa Rica	Panama
Barbados	Dominica	Trinidad and Tobago
Belize	Grenada	Turks and Caicos Is.
Bermude	Guyana	Uruguay

Group II-B: Lower-risk countries. Those countries which have maintained vaccination coverages of greater than or equal to 80% of children under one year of age in each of the previous three years.

Antigua and Barbuda	Martinique	St. Martens and
Canada	Montserrat	and St. Bartholomew
Cayman Islands	Netherlands Antilles	St. Vincent and the
Chile	Puerto Rico	Grenadines
Cuba	Saint Lucia	United States of America
Guadeloupe	St. Kitts-Nevis	U.S. Virgin Islands

APPENDIX II

PROPOSED SUBREGIONALIZATION FOR POLIOMYELITIS  
ERADICATION EFFORT AND LOCATION OF SUBREGIONAL ADVISORS

<u>Location of Advisor</u>	<u>Countries in Subregion</u>
Guatemala	Guatemala El Salvador Nicaragua Panama Honduras
Mexico	Mexico Belize Costa Rica
Haiti	Haiti Dominican Republic
Colombia	Colombia Venezuela Ecuador
Peru	Peru Bolivia
Brazil	Brazil Argentina Uruguay Chile Paraguay
Trinidad and Tobago (CAREC)	English-speaking Caribbean and Suriname

TERMS OF REFERENCE OF PAHO EPI TECHNICAL ADVISORY GROUP (TAG)

1. According to the Plan of Action for the eradication of indigenous transmission of wild poliovirus from the Americas by 1990, a Technical Advisory Group (TAG) should be formed to help the PAHO Secretariat with its implementation.
2. To accomplish the above, an outstanding group of consultants will be appointed by the Director, to advise PAHO on the acceleration of the Expanded Program on Immunization in the Americas and on the efforts to eradicate the indigenous transmission of wild poliovirus from the Region by 1990.

The Technical Advisory Group will be composed of five individuals and will be assisted by additional consultants and/or study panels for any specific purposes they may require.

3. The Technical Advisory Group will:
  - a) Advise the PAHO Secretariat with respect to program priorities over the next five years;
  - b) Advise and guide the PAHO Secretariat concerning the optimal strategies and tactics to reach the overall goals of the EPI and the eradication of indigenous transmission of wild poliovirus from the Americas by 1990;
  - c) Monitor the implementation of the Regional Plan of Action to accomplish the above-stated goals;
  - d) Promote understanding and support for the program goals among technical institutions and bilateral, multilateral and private agencies, as well as political leaders; and
  - e) Participate in missions at country level for program reviews and meetings
4. Members of the Technical Advisory Group will be appointed by the Director for a period of one year, with extensions to be arranged at his discretion.
5. At least one member of the TAG should also be a member of the EPI Global Advisory Group (GAG). At least one member of the TAG should also participate in meetings with other agencies and organizations to assure proper coordination and exchange of information.
6. TAG meetings will be convened as required, usually twice a year, and a report on each meeting will be prepared and circulated as appropriate.



RESOLUTION XXII

EXPANDED PROGRAM ON IMMUNIZATION IN THE AMERICAS

THE XXXI MEETING OF THE DIRECTING COUNCIL,

Having considered the Director's report on the Expanded Program on Immunization in the Americas (EPI) and the report of the 95th Meeting of the Executive Committee;

Noting the overall improvement made at national level in the implementation of this program and the impact already achieved in reducing morbidity by poliomyelitis;

Believing that an attempt to eradicate poliomyelitis presents a challenge and a stimulus to the world to mobilize the resources to achieve the objective, and that the support required is available nationally and internationally; and

Recognizing that the realization of this objective will enhance the overall success of the EPI,

RESOLVES:

1. To congratulate the Director on the report presented.
2. To reassure its full commitment to reach the overall goals of the EPI by 1990.
3. To accept the Proposal for Action for the eradication of indigenous transmission of wild poliovirus from the Americas by 1990 and declare the goals established in the Proposal for Action as one of the major objectives of the Organization.
4. To urge Member Governments:
  - a) To take the necessary steps to accelerate their EPI programs to assure the achievement of the overall objectives of the EPI and of the eradication of indigenous transmission of wild poliovirus from the Americas by 1990;
  - b) To make the needed commitment and allocate the necessary resources for program implementation;
  - c) To promote support towards these goals within those technical and financial multilateral agencies of which they are also members.

that: 5. To draw the attention of the Member Governments to the necessity

- a) Immunization programs not be implemented at the expense of efforts to develop the infrastructure of health services and their overall promotion, prevention and care activities;
- b) The strategy of campaigns and the tactic of national vaccination days be viewed as ad hoc measures, to be gradually replaced by regular immunization services performed routinely by health services.

6. To request the Director:

- a) To seek the additional political and material support needed for the realization of these goals from multilateral, bilateral and nongovernmental agencies;
- b) To initiate immediate action as outlined in the Proposal for Action to assure the necessary technical and financial support for the eradication of indigenous transmission of wild poliovirus from the Americas by 1990;
- c) To submit a progress report to the 97th Meeting of the Executive Committee and the XXII Pan American Sanitary Conference in 1986.

(Approved at the eleventh plenary session,  
27 September 1985)

APPENDIX III

COST COMPONENTS

Personnel (\$1,850,000 already available at PAHO) . . . . . \$7,100,000

Full time - 11 at \$30,000/year x 5 years = \$1,650,000  
Sub-regional - 4 at \$100,000/year x 5 years = \$2,000,000  
STC's - \$8,000/month x 200 months = \$1,600,000

Administration, Information, Documentation .....\$1,100,00

Vaccine . . . . . \$10,773,000

12 x 10<sup>6</sup> children 1 year olds (1984) x 5 = 60 x 10<sup>6</sup> (1st yr)  
12 x 10<sup>6</sup> children 1 year olds (1984) x 4 years = 48 x 10<sup>6</sup>  
Total = 108 x 10<sup>6</sup> children to be immunized  
at 3 doses/child = 324 x 10<sup>6</sup> doses x 1.33 (wastage) = 430 x 10<sup>6</sup>  
at US\$0.025/dose = US\$10,773,000  
(Year 1 = US\$5,985,000)  
(Years 2, 3, 4, 5 at US\$1,197,000/year)

Meetings . . . . . \$950,000

TAG -- 3 meetings/year x 5 years = \$257,250  
7 persons x 3 days/meeting at \$150/day = \$3,150  
Travel at \$2,000/Person = \$14,000

PEP -- (Polio eradication personnel - country coordinators) = \$1,196,000  
36 countries x 2 persons/country = 72 persons  
15 regional staff  
5 expert consultants  
Travel at \$1,000/person = \$92,000  
Per diem at \$100/day/person x 3 days = \$300  
1 meeting/year x 5 years = \$598,000

ICC - (Interagency Coordinating Committee)  
3 meetings/year x 5 years = \$90,000  
10 persons x 1 day/meeting at \$100/day = \$1,000  
Travel at \$500/person = \$5,000

<u>Laboratories</u> . . . . .	<u>\$550,000</u>
6 Viral diagnostic laboratories at \$40,000/lab = \$240,000	
2 Laboratories with oligonucleotide mapping capabilities at \$80,000/lab = \$160,000	
Supplies for viral diagnostic labs at \$10,000/year x 5 years = \$50,000	
Supplies for oligonucleotide mapping labs at \$10,000/year x 5 years = \$50,000	
Shipping of specimens - at \$20 /specimen x 500 specimen/year = \$10,000 10,000 x 5 years = \$50,000	
<u>Mobilization costs for national personnel</u> . . . . .	<u>\$5,250,000</u>
(travel and per diem)	
<u>Promotional costs</u> . . . . .	<u>\$3,750,000</u>
(media time: radio, TV, press)	
<u>Training</u> . . . . .	<u>\$2,000,000</u>
<u>Cold Chain</u> . . . . .	<u>\$3,000,000</u>
<u>Evaluations</u> . . . . .	<u>\$2,000,000</u>
Coverage surveys - \$35,000/survey x 10 surveys/year x 4 years = \$1,400,000	
Country evaluations \$15,000/evaluation x 10 evaluations/year x 4 years = \$600,000	
<u>Research</u> . . . . .	<u>\$2,000,000</u>
<u>Contingency Funds</u> . . . . .	<u>\$6,000,000</u>



## APPENDIX IV

### PRELIMINARY FINANCIAL ANALYSIS

Using the 1984 population estimates for the Region, it is estimated that there are 16 million children less than one year of age who will benefit from this program annually. With the plan to immunize all children less than five years of age during the first year, and all less than one-year olds in subsequent years, there will be an estimated 144 million beneficiaries by 1990.

While the total socioeconomic benefits cannot be calculated at present, a cost-benefit analysis of the poliomyelitis control program in Brazil conducted in 1983 showed a savings of US\$20,000,000 during the period 1980-1983. (These calculations are based on a cost of US\$271 per case for acute care and US\$2,400 per case for rehabilitation over ten years; loss of productivity and its cost to society have not been included in this calculation.)

Prior to the implementation of the EPI in the Region of the Americas an average of over 3,000 cases and approximately 350 deaths from poliomyelitis were reported annually in the Region. Recognizing that there is a serious problem with under-reporting, the true morbidity burden can safely be approximated by multiplying these figures by a factor of at least five. A 1977 study estimated that the average cost per patient for acute care of poliomyelitis in hospitals was US\$253 (ranging from US\$100 to US\$800). Using the Brazil estimate of rehabilitation costs of US\$2,400 per case, the cost to the Region was approximately US\$40 million annually (3,000 cases x 5 x \$2,653 per case treated is \$39.8 million). This calculation assumes that all cases receive both acute care and rehabilitation; it takes no account of loss of income due to paralysis, nor of the loss of life.

To eradicate indigenous transmission of wild poliovirus will cost the Region about \$110 million over five years, or \$22 million annually. The saving in medical costs alone over this period would be \$200 million, so there would be a net saving about equal to the cost of the eradication program. Of course, the savings will continue after the five-year eradication campaign. From 1990 onward, the cost of keeping children vaccinated and maintaining the eradication of polio should drop to only \$5 million per year, while the saving in medical costs--compared to the situation that prevailed before the EPI was instituted--would continue to be about \$40 million annually, leaving a net saving of \$35 million per year.

Savings obtained in the future must be discounted, for comparison to immediate savings. If a discount rate of ten percent is used (so that \$1.00 saved today is worth \$1.10 saved next year), then from 1985 through the end of the century the present discounted value (PDV) of the savings from eradicating polio will be no less than \$230 million. This estimate includes savings of \$83.4 million over the five years of the eradication campaign (less than \$100 million because of discounting in 1987-1990), and \$146.9 million in savings over the following decade (this is much less than ten years times \$35 million,

because the first year's savings, in 1991, is discounted to only \$21.7 million and subsequent years are discounted still more). This approximation suggests that by the year 2000, the eradication of polio would pay for itself 2.3 times over in reduced medical costs alone.

This conclusion is of course greatly strengthened if any account is taken of the reduced productivity and therefore lower lifetime income of polio victims. Supposing that only 40 percent of those victims would otherwise have been in the labor force throughout their adult lives, and would therefore have contributed to measured gross national product; and supposing further that they would have earned only one-fifth the average of all workers, because they would be predominantly under-educated, low-productivity workers, the income loss to each one from paralytic polio would still be of the order of \$650 annually. Over a production lifetime of as little as 37 working years (ages 18 to 55), the PDV of \$1,250 per person, allowing for the fact that polio is usually contracted in the first two years of life, so that income starting at age 20 is heavily discounted. The savings from preventing 15,000 cases of polio are then a further \$16.8 million in the first years, or nearly the annual cost of the eradication campaign. From 1985 to the year 2000, the total savings would be \$127.6 million, more than the total cost of eradication.

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