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LAC Regional - Child Survival: Polio Eradication in the Americas
Grant PP

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CHILD SURVIVAL: ACCELERATED IMMUNIZATION PROGRAM IN THE AMERICAS
1986-1990

A Proposal to the U.S. Agency for International Development

500114

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ABBREVIATIONS

AID	U.S. Agency for International Development
EPI	Expanded Program on Immunization
ICC	Interagency Coordinating Committee
IDB	Inter-American Development Bank
PAHO	Pan American Health Organization
TAG	Technical Advisory Group
TOPV	Trivalent Oral Polio Vaccine
DPT	Diphtheria-Pertussis-Tetanus Vaccine
TT	Tetanus Toxoid Vaccine

DEFINITIONS

- DPT: This vaccine contains toxoids of Corynebacterium diphtheria, Clostridium tetanii and killed Bordetella pertussis bacteria. It protects against Diphtheria, Tetanus and Whooping Cough, and a minimum of three doses is required.
- EPI: Initiated by a 1974 World Health Assembly Resolution and endorsed by a PAHO Directing Council resolution in 1977, this program has the goal of providing immunization

services for all children of the world by 1990. Objectives include reduced mortality and morbidity from poliomyelitis, diphtheria, whooping cough, tetanus, measles, tuberculosis; increased national capability to deliver immunizations through comprehensive health services; and increased regional capability for vaccine production and quality control.

- ICC: Established in July 1985 to ensure coordination of all international agency inputs for the polio eradication program, agencies represented are AID, UNICEF, IDB, Rotary International the Task Force for Child Survival, and PAHO.
- Measles Vaccine: Attenuated measles virus, which loses its capability of inducing the disease but maintains its capacity of inducing antibodies which protects the host against infection by the wild virus. One dose is required.
- The Region: North, Central and South America, and the Caribbean.
- TAG: A group of technical experts appointed by the PAHO Director to advise PAHO on the acceleration of EPI in the Americas and on efforts to eradicate the indigenous transmission of wild poliovirus from the Region
- Task Force for Child Survival: Consists of representatives of WHO, UNICEF, The World Bank, UNDP and Rockefeller Foundation for the purpose of coordinating efforts to support activities directed to child survival. Its Executive Director is Dr. William Foege.
- TOPV: Trivalent oral polio virus vaccine which is a mixture of live attenuated strains of all three polio types I, II and III. TOPV is administered orally. At least 3 doses of oral polio vaccine are needed for primary immunization.
- TT: Tetanus toxoid is a formaldehyde-inactivated filtrate of an anaerobic of Clostridium tetanii. This vaccine is used in the adult population, particularly those living in areas at risk of Tetanus. In addition, it is recommended for women of childbearing age, or pregnant women for the protection of their offspring against neonatal tetanus. Two doses are required.

CHILD SURVIVAL: ACCELERATED IMMUNIZATION PROGRAM

Summary

Building self-sustaining immunization programs within health delivery systems is an important step toward the attainment of child survival. By providing immunization to infants, the Expanded Program on Immunization (EPI) will contribute directly to the broader goal of child survival by reducing morbidity and mortality due to the childhood diseases that are preventable by adequate immunization.

Member states of the Pan American Health Organization (PAHO) have set the goal of totally interrupting the indigenous transmission of wild poliovirus thereby eradicating poliomyelitis from the Americas by 1990. Not counting loss of income due to paralysis nor loss of life, the cost of acute care and rehabilitation of poliomyelitis to the Region is approximately US\$40 million annually.

The eradication of poliomyelitis from the Americas will promote the development of the EPI in the region through improvements in surveillance and supervision systems, vaccine delivery systems and laboratory services. It is also expected that training programs will result in improved health staff performance. In particular, the interruption of transmission of wild poliovirus will assure that no child residing in the Americas will suffer from paralytic polio due to the wild virus. In the effort to eradicate poliomyelitis through immunization, the EPI will also deliver DPT and measles vaccines as well as tetanus toxoid vaccine to women of childbearing age for the prevention of neonatal tetanus. Hence, the eradication of poliomyelitis will be the wedge by which sustainable immunization programs may be achieved while contributing directly to improved child survival.

Despite progress achieved through implementation of the Expanded Program on Immunization over the past few years, 17 countries in the region have reported cases of poliomyelitis during the past three years. Another 15 countries are at high risk of an outbreak of poliomyelitis due to immunization coverage of less than 80% of children under one year of age.

A Plan of Action to interrupt indigenous transmission of poliovirus from the Americas was reviewed and endorsed by the Directing Council of PAHO (Annex B), a Technical Advisory Group constituted by world experts in this field and by an Interagency Coordinating Committee of potential donors which includes participants from AID, IDB, Rotary International, the Task Force for Child Survival, and UNICEF. Administrator McPherson of AID addressed the Ministers of Health attending PAHO's Directing Council Meeting in September 1985 and declared his support for activities to eradicate poliomyelitis from the Region by 1990.

The Plan of Action (Annex A) documents the dramatic reduction in poliomyelitis achieved in the Region due to increased coverage with polio vaccine since 1978 and proposes that eradication of this disease from the Americas is a feasible goal for 1990. Key strategies recommended to achieve this goal are: fiscal planning to enable the mobilization of national resources and sustain coverage of recurrent costs, achievement and maintenance of 80% coverage for each country, surveillance to detect and control outbreaks, strengthened diagnostic services through laboratory support, information dissemination, a certification protocol to declare the countries and the Region free of indigenous transmission, and ongoing evaluation of all program activities. The total cost of these activities is estimated at US\$120 million, of which approximately one-third will be provided by external donors.

The total external input is estimated at US\$47,550 million and is expected to come from the donor agencies that will be supporting the acceleration effort (see Table 7--page 38, and Annex C).

The project activities to be financed by the various donors were defined taking into consideration the comments made by the representatives of these agencies during the First Meeting of the Inter-Agency Coordinating Committee, held in July, 1985. In spite of the fact that no commitments were made at the Meeting, representatives indicated some of the areas which traditionally their agencies have supported in other projects.

Another point of consideration was the novelty of the terms of reference for the contributions of the donors, particularly AID and IDB, which will entail a considerable amount of processes in the financial management of the project.

Considering the above, and in order to facilitate the planning and financial management and the participation of the IDB, it was decided that its contribution would be requested for two entire components of the project, in this case the consultants (in-country and short-term) and the training.

This grant proposal to AID totals \$20,600,000 for a five year project. Over half of this amount is accounted for by costs due to mobilization, promotion and operations research. Other costs include personnel, laboratory support, evaluations, cold chain, information dissemination and meetings.

The grant is to be managed by PAHO's EPI office in Washington, D.C. AID grant funds will enable PAHO headquarters staffing to be reinforced with additional management and technical personnel to provide technical assistance and ensure adequate monitoring, supervision, coordination and liaison with donor agencies. Eleven epidemiologists resident in countries having major problems will support national Ministry of Health staff. The resident epidemiologists will be funded by IDB.

Each country will be requested to assign a member of their EPI office within the Ministry of Health (MOH) to be in charge of the polio eradication effort. The national polio eradication manager will coordinate all eradication activities within the EPI. The manager would work under the supervision of the national EPI manager and have responsibility for implementation of the National Plan of Action. This national polio eradication manager may be the same person in charge of EPI.

At the subregional level, seven PAHO epidemiologists/technical officers will serve as advisors on an international basis to provide support and supervisory assistance to the in-country personnel. AID will fund two subregional advisors.

PAHO/Washington will be responsible for reviewing national work plans, monitoring their implementation, centrally procuring commodities based on field requests, deploying technical assistance, operational research, evaluations, reports to AID and financial accountability. In addition to project-specific evaluations, program evaluation will include national coverage surveys, country program reviews, plus a review of regional level activities such as laboratory diagnostic services.

Technical Advisory Group and Inter-Agency Coordinating Committee meetings will be convened by PAHO at least twice annually to review progress and provide continuing guidance.

The project is being undertaken in a phased manner, starting with those countries at highest risk as determined by the classification of countries according to risk of poliomyelitis outbreaks (Table 5--page 22).

The project is aimed primarily at countries which are reporting cases of poliomyelitis or have reported cases within the last three years. Considering the weaknesses in the surveillance systems it will be necessary to ascertain the rates of underreporting as well as a confirmation of absence in those countries not reporting polio. The national polio eradication manager and the country epidemiologist with the support of the PAHO subregional advisor will prepare the National Plans of Action in collaboration with the Ministries of Finance. These Plans will be operational and will indicate activities to be undertaken. The Plans will include fiscal analysis including recurrent costs.

Country-specific annual work plans will be then prepared indicating all activities to be implemented. Gradually the countries will enter a program of training or retraining aimed at sustaining increased vaccination coverage coupled with a program to improve the disease surveillance system. Once countries have taken the necessary steps to interrupt the transmission of wild poliovirus, the project will then focus on those countries which have not reported cases of paralytic polio within the previous three years in order to assure that control measures remain at the same level or are improved.

The National Plans of Action, the country-specific annual work plans, PAHO annual project work plans and quarterly progress reports will be provided to AID. Planning is already underway at the country level. AID and other donor agency field staff will be invited to participate in this process. Preliminary meetings have been held by PAHO with MOH EPI office directors and their support has been obtained. Meetings are underway with other donor agencies to formalize funding support. The tentative start-up date is January 30, 1986.

1. INTRODUCTION

This proposal identifies specific AID inputs which will complement other donor agency resources in an overall five-year Plan of Action to interrupt wild poliovirus transmission in the Americas by 1990. This Plan was revised in July 1985 by a specially appointed PAHO/EPI Technical Advisory Group, and was approved by the PAHO Member Countries (including the U.S.A.) at the 31st PAHO Directing Council in September 1985 (Annexes A and B).

The Plan has a goal of improving the health and productivity of the population in the Americas through the prevention of immunizable diseases and has the following purpose:

To strengthen and accelerate the Expanded Program on Immunization in the Region and its objective of improved child survival, including the interruption of indigenous transmission of wild polioviruses and thus, the eradication of poliomyelitis in the American Region by the year 1990.

One of the major outcomes of the effort will be setting 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. This surveillance system will be the basis for measuring the impact of the overall Expanded Program on Immunization.

Section 2 of this proposal describes the nature of the polio problem and operational constraints against further expansion of coverage with polio vaccine in the Region; it provides the rationale for project design. Section 3 describes the activities and contains information on budget and implementation arrangements. Section 3 also contains the evaluation plan and a proposed schedule of reports to be submitted to AID. Sections 4 and 5 contain the technical and economic analysis of the project, respectively.

2. BACKGROUND

2.1 Nature and Magnitude of the Problem

The problem addressed in this project is the presence and transmission of the wild poliovirus and the crippling effects of poliomyelitis on the individuals, families, and nations of the Americas which can be prevented by adequate immunization. Despite the tremendous progress achieved through the implementation of the EPI over the past few years, there are still 17 countries that have reported cases of polio during the past three years. Of the remaining countries that have reported no polio cases during the same period, 15 are classified as high-risk due to the fact that less than 80% of the children under one year of age have been covered by the immunization program.

In view of the continuing presence of this problem, the member states of the Pan American Health Organization have set the target of totally interrupting the indigenous transmission of wild poliovirus, thereby eradicating poliomyelitis from the Americas by 1990. The aggregate cost of immunizing all children under five years of age in the Region against polio during the first year, and immunizing the children less than one year of age born in subsequent years is roughly \$120 million over the next five years. Approximately one-third of the funds are required from external sources. Specifically, external resources are needed to strengthen national immunization programs in order to overcome the following operational problems:

- Insufficiency of vaccine quality control in the countries of the Region to meet the demand;
- Inadequacy of laboratory infrastructure available in the Region for isolation and characterization of wild and vaccine poliovirus;
- Need for expansion of cold chain facilities, including resources and personnel for repair and equipment maintenance;
- Insufficiency of funds for adequate and timely staff mobilization to manage and supervise program and disease control activities;

- Technical deficiencies in the areas of management, supervision, and evaluation;
- Weak epidemiological surveillance and information systems;
- Need for more effective communication methodologies to enhance community support and participation in the program in order to increase primary immunization completion rates;
- Need for expansion of operational research to address critical issues facing the EPI program, such as dropouts, surveillance techniques and diagnostic methods.

The implementation plan described in the following section is geared to the solution of these problems, and to the accomplishment of the stated purpose of this project. If the program succeeds as planned it is expected that the future recurrent cost burden of this program will be sustainable at the regional level by member country health sector budgets, with minimal external assistance.

2.2 Progress to Date

Although much remains to be done, remarkable improvements in the control of paralytic poliomyelitis in the Americas have been made since 1977, the starting year of the EPI in this Region. The proportion of children less than one year of age who have received the recommended three doses of polio vaccine has increased from 35% in 1978 to more than 75% in 1984. The number of reported cases of paralytic polio has decreased by 90% from the 4,728 reported cases in 1979 to 525 in 1984. The number of countries reporting cases decreased from 19 in 1975 to only 11 in 1984, and the number of cases decreased by 10 times in the period 1975-1984 (Table 1). A major reason for the increased polio vaccine coverage and decreased paralytic polio morbidity has been the incorporation of special national immunization days. Countries such as Bolivia, Brazil, Dominican Republic and Mexico have emphasized oral polio vaccination during these special national immunization days. Colombia and El Salvador have included DPT, measles and TT vaccines with the delivery of polio vaccine. Brazil has included these other EPI antigens since 1984.

Table 1

Number of Reported Polio Cases in the Americas by Country, 1975-1984

Country	Mean No. of Cases		Total No. of Cases			
	1975-77	1978-80	1981	1982	1983	1984
Bermuda	-	-	-	-	-	-
Canada	1	4	-	-	-	1
U.S.A.	13	20	7	9	12	7
Anguilla	-	-	-	-	-	-
Antigua & Barbuda	-	-	-	-	-	-
Bahamas	-	-	-	-	-	-
Barbados	-	-	-	-	-	-
British Virgin Islands	-	-	-	-	-	-
Cayman Islands	-	-	-	-	-	-
Cuba	-	-	-	-	-	-
Dominica	-	-	-	-	-	-
Dominican Republic	63	107	72	70	7	-
Grenada	-	-	-	-	-	-
Haiti	25	16	35	35	62	63
Jamaica	-	-	-	58	-	-
Montserrat	-	-	-	-	-	-
Saint Lucia	-	-	-	-	-	-
Saint Kitts/Nevis	-	-	-	-	-	-
Saint Vincent	-	-	-	-	-	-
Trinidad & Tobago	-	-	-	-	-	-
Turks & Caicos	-	-	-	-	-	-
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 -	-	-	-	-	-	-
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	-	-	-	-	-	-
Guyana	2	-	-	-	-	-
Paraguay	74	20	60	71	11	3
Peru	136	120	149	150	111	102
Suriname	-	-	-	1	-	-
Venezuela	44	34	68	30	-	-
Argentina	2	22	5	10	26	-
Chile	-	-	-	-	-	-
Uruguay	6	-	-	-	-	-
TOTAL	4,772	3,877	1,464	969	910	525
NUMBER OF COUNTRIES REPORTING CASES	19	18	16	17	14	11

Morbidity Trends

It is impressive to evaluate the number of reported cases at different stages of implementation of EPI: the first (1978-1980) representing the training period and early implementation, the second (1981-1983) representing the build-up of the program, and the third, the most recent year, 1984 (Table 2). By 1983 all subregions had shown major reductions in the number of cases reported annually from pre-EPI days, ranging from 34% in Caribbean to 91% in Temperate South America. Overall, there was a 74% reduction in the number of cases reported in the Americas. In 1984, the Caribbean and Temperate South America reported no poliomyelitis activity. Tropical South America reported a 93% reduction in cases, and overall in the Americas, there was an 88% reduction in numbers of cases.

Table 2
Mean Number of Cases of Poliomyelitis Reported Annually in the Americas by Stages Pre- and Post-EPI Implementation (with total for 1984) and Percentage Change from Pre-EPI, by Sub-region

Sub-Region	Pre-EPI Implementation 1969-1977		Stage 1 Post-EPI 1978-1980		Stage 2 Post-EPI 1981-1983		Stage 3 Post-EPI 1984	
	Mean No.	%	Mean No.	%	Mean No.	%	Total No.	%
<u>North America</u>	20		8	-40	9	-55	8	-60
<u>Middle America</u>								
Continental*	1,062		1,140	+7	473	-55	312	-71
Caribbean	29		1	-97	19	-34	0	-100
<u>South America</u>								
Tropical	3,011		2,465	-18	599	-80	205	-93
Temperate	151		22	-85	14	-91	0	-100
TOTAL	4,274		3,651	-15	1,115	-74	525	-88

Includes Haiti and Dominican Republic.

Vaccination Coverage

Table 3 presents the reported coverage of the less than one year old population with three or more doses of polio vaccine during the period 1978-1984, since the adoption of the EPI in the Americas. During this period, the proportion of countries reporting coverages has increased from 68% in 1978 to 95% in 1983 (Canada and the United States of America do not report coverages for the less than one year old population). Overall, the proportion of less than one year olds with three or more doses of polio vaccine in the Americas has increased from 35% in 1978 to greater than 75% in 1984. During the period 1978-1983, 19 countries demonstrated increasing trends of coverage.

Vaccination coverage for all the EPI vaccines has improved considerably since the EPI was launched in 1977. In 1978, 10% of children under 1 year of age lived in countries where immunization coverage was at least 50% for this age group. By 1984, the proportion of children completely immunized had risen considerably, to over 55% for DPT and Measles. Table 4 shows 1984 vaccination coverages in children under one year of age by type of vaccine.

The impact of the high coverage 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 number of cases reported each year during the same period.

Table 3

Coverages With Three or More Doses of Polio Vaccine in the Americas, 1978-1984

Subregion and Country	% coverage by year of the less than one year old population						
	1978	1979	1980	1981	1982	1983	1984
<u>North America</u>							
Bermuda	...	...	39	...	68	53	48
Canada	...	...	...	...	...	...	...
United States	...	...	...	...	...	...	...
<u>Caribbean</u>							
Anguilla	77	48	86	81	86	99	73
Antigua and Barbuda	53	...	36	47	90	99	93
Bahamas	99	27	35	40	67	65	62
Barbados	56	60	99	54	63	62	77
British Virgin Is.	...	14	95	70	94	75	85
Cayman Islands	31	52	47	63	91	90	90
Cuba*	99	97	99	82	82	95	99
Dominica	20	31	53	97	73	92	82
Dominican Republic	28	35	46	42	37	22	92
Grenada	...	6	32	41	61	72	75
Haiti	1	3	2	3	7	6	12
Jamaica	...	...	34	37	68	47	56
Montserrat	63	5	38	55	95	95	82
Saint Lucia	32	...	58	65	81	80	84
St. Kitts/Nevis	...	25	76	71	93	91	97
St. Vincent	5	...	26	33	99	84	90
Trinidad and Tobago	45	28	38	55	59	61	66
Turks and Caicos	...	21	44	27	80	79	70
<u>Continental Mid America</u>							
Belize	45	42	21	51	52	61	54
Costa Rica	58	44	67	85	78	54	81
El Salvador*	...	57	42	38	42	48	44
Guatemala*	...	62	43	42	45	44	37
Honduras	7	25	32	37	53	70	84
Mexico	...	11	43	85	85	74	91
Nicaragua	18	...	99	52	50	30	73
Panama	41	57	45	50	61	60	70
<u>Tropical South America</u>							
Bolivia	3	12	14	15	15	11	57
Brazil*	34	49	99	99	99	99	89
Colombia	17	19	16	22	27	42	60
Ecuador	10	16	14	19	36	34	36
Guyana	31	37	42	37	73	59	41
Paraguay	2	5	14	26	39	47	59
Peru	21	19	16	20	23	18	26
Suriname	...	20	24	22	53	83	79
Venezuela	83	88	95	75	77	67	59
<u>Temperate South America</u>							
Argentina	...	5	31	38	94	94	64
Chile	98	97	91	93	98	93	87
Uruguay	52	58	59	58	72	74	83
Total**	34	34	59	69	74	72	78

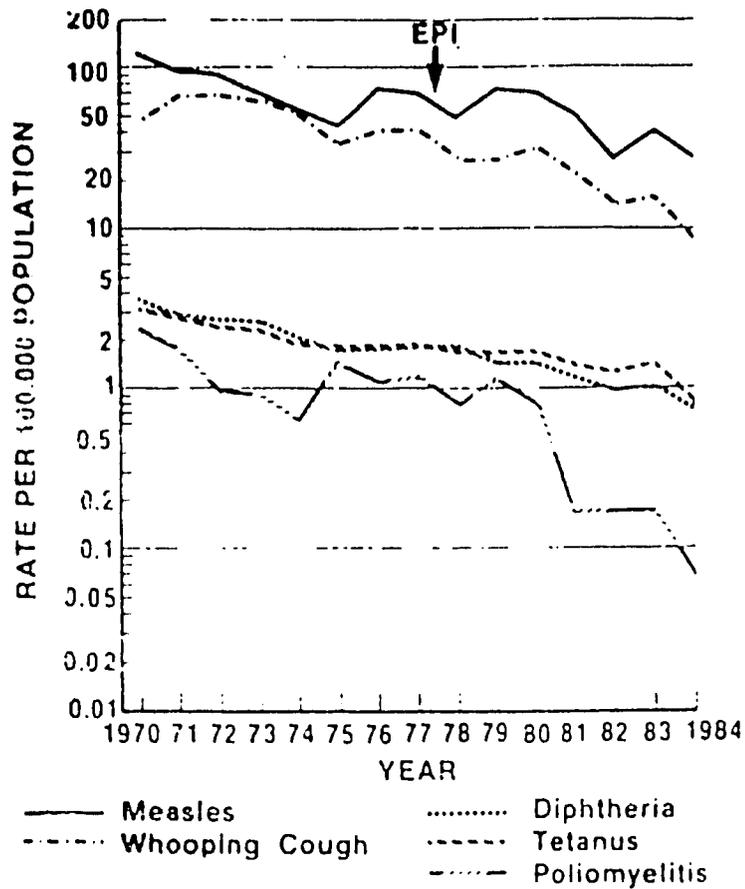
* Second instead of third dose data.

** Includes only countries with available data.

... Data not available.

Figure 1

Annual reported incidence rate of poliomyelitis and other EPI diseases
(per 100,000 population),
Region of the Americas, 1969-1984



* Excluding Bermuda, Canada and the United States

Figure 2

Annual number of reported cases of poliomyelitis

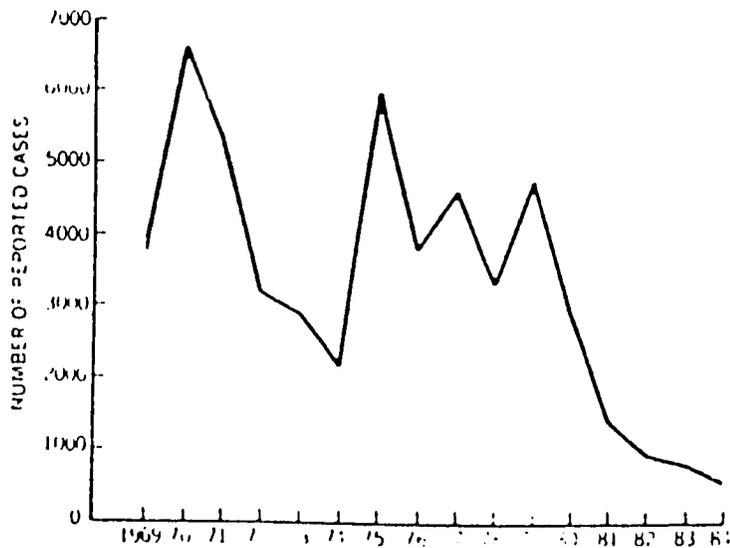


Table 4

Vaccination Coverage in Children under 1 year by Vaccine Type and Dose
in the Region of the Americas, 1984

Subregion and Country	Population Under 1 Year	DPT 3rd Dose	Polio 3rd Dose	Measles	BCG
<u>NORTH AMERICA</u>	<u>4,420,000</u>				
Bermuda	800	40	41	42	---
Canada	403,000	---	---	---	---
United States	3,700,000	---	---	---	---
<u>CARIBBEAN</u>	<u>672,970</u>				
Anguilla	200	69	73	72	75
Antigua & Barbuda	2,100	94	92	73	---
Bahamas	6,200	62	62	66	---
British Virgin Islands	300	85	85	89	---
Cayman Islands	600	90	90	75	64
Cuba	168,000	88	99	80	94
Dominica	2,500	84	82	85	84
Dominican Republic	197,000	20	99	19	43
Grenada	4,000	76	75	31	---
Haiti	200,000	12	12	13	58
Jamaica	59,000	57	56	60	48
Montserrat	300	84	82	---	81
St. Kitts/Nevis	1,800	97	97	85	---
St. Lucia	4,300	83	84	60	80
St. Vincent & Grenadines	3,500	86	90	92	32
Trinidad & Tobago	23,000	65	66	10	---
Turks & Caicos	170	60	70	44	99
<u>CONTINENTAL MID AMERICA</u>	<u>3,522,992</u>				
Belize	5,700	54	54	44	82
Costa Rica	68,000	82	81	83	---
El Salvador	200,000	44	44	41	21
Guatemala	294,000	54	53	27	37
Honduras	169,000	48	84	51	47
Mexico	2,622,000	26	91	30	24
Nicaragua	133,000	32	73	30	24
Panama	60,000	70	70	72	79
<u>TROPICAL SOUTH AMERICA</u>	<u>6,103,429</u>				
Bolivia	243,252	24	56	17	24
Brazil	3,845,000	67	99	80	79
Colombia	798,000	60	60	52	67
Ecuador	347,000	36	36	40	79
Guyana	25,000	43	41	33	49
Paraguay	122,000	58	59	53	70
Peru	672,000	26	26	32	59
Suriname	11,000	80	79	83	---
Venezuela	557,7000	27	59	25	23
<u>TEMPERATE SOUTH AMERICA</u>	<u>938,880</u>				
Argentina	602,000	66	64	90	72
Chile	285,000	84	86	77	87
Uruguay	57,000	57	83	17	---
<u>TOTAL FOR ALL SUBREGIONS (EXCEPT NORTH AMERICA)</u>	<u>5,658,271</u>	<u>49</u>	<u>78</u>	<u>53</u>	<u>57</u>

--- Data not available.

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

In September 1985, all PAHO Member Countries formally endorsed the Plan of Action for interruption of wild poliovirus transmission by approving Resolution No. 22 (Annex B) at the 31st Meeting of the PAHO Directing Council. Included in this Resolution was a request that the PAHO Director take immediate steps to assure the necessary technical and financial support to put the Plan into action. The AID Administrator, Mr. Peter McPherson, endorsed the goal of eradicating poliomyelitis from the Americas by 1990 in his address to the PAHO Directing Council Meeting the 27th of September 1985. Several of the international donor agencies had pledged their support to the achievement of this goal on the 14th of May, 1985, when the PAHO Director first announced this goal.

2.3 Rationale

The success of the campaign to eradicate smallpox from the world, achieved in 1977, led public health officials to focus on the question of what other diseases might be potential candidates for eradication. Before serious consideration can be given to the global eradication of a disease, however, one of the most important requirements is to show that it can be eliminated from large geographic areas.

The observations documented in Section 2.2 above reported that cases in 1984 were at an all time low, indicating that the timing is propitious and that interruption of indigenous transmission of wild poliovirus in the Americas is now feasible.

Factors which favor the regional interruption of wild poliovirus are: (1) infection is limited to a human host and transmitted person to person; (2) paralytic polio is usually serious and recognizable; (3) there are no long term carrier states; (4) though the period of infectivity is not accurately known, cases are probably most infectious during the first few days before and after the onset of symptoms; (5) following the disease or immunization with polio vaccine, immunity is conferred for life, and a patient is not subject to

reinfection; (6) the seasonality of polio is such that one can experience fade-outs at the low point in the yearly cycle of the wild virus; (7) There exist two types of vaccines, TOPV and inactivated polio vaccine which have proven to be very effective in providing immunity and controlling outbreaks. The conclusions of the International Symposium on Poliomyelitis Control* indicated that both are effective against the disease and that political will and financial and administrative matters are the necessary ingredients for the achievement of worldwide control or its eradication.

Furthermore, the high costs of medical care for the acute stage and long-term rehabilitation -- as well as the incalculable costs of human suffering and lost productivity -- make polio eradication a cost-effective measure in any terms. In the Americas, the savings in medical costs alone are estimated to be almost twice the projected cost of the acceleration of the program (approximately US\$120 million with approximately US\$42,000 from external donors over five years) from now to the year 2000. (See Item 5, Economic Analysis).

The calculations of cost and benefit (in the form of reduced expenditures for treatment and rehabilitation) are based on estimates of the average cost per person vaccinated or per person treated, as they must be for total costs and benefits to be correctly estimated. However, the average cost of vaccination is almost certain to depend on the coverage achieved: as coverage approaches 100 percent, immunization is extended to people who are more difficult to reach geographically or more difficult to persuade more must be spent per person vaccinated. The marginal cost of immunization rises, perhaps sharply, as coverage expands. If coverage reaches enough of the population to cause high average costs but not enough to interrupt transmission, there is a further reason to expand coverage to break the chain of transmission and ensure eradication. That is, once adequate coverage has been achieved, marginal -- and therefore average -- costs can decline, offsetting some or all of the increased expenditure required by the higher coverage. That part of the cost due to the difficulty of reaching remote or dispersed populations cannot of course be avoided, since their immunity must be maintained. It

* Proceedings of the International Symposium on Poliomyelitis Control Reviews of Infectious Diseases, Vol. 6, Supplement 2, May-June 1984.

should be possible to eliminate the extra cost required to locate and vaccinate older children and adults, including the costs of persuading those people to accept vaccination. Once it is necessary only to vaccinate each year the infants born that year, both logistic and educational costs can and should decrease. It is therefore wasteful to approach eradication paying the high cost of high but still inadequate coverage, if an extra effort can achieve eradication and thereby lower the costs of maintaining immunity.

Polio vaccination differs in many aspects from other EPI vaccinations, permitting use of special strategies already demonstrated to produce a rapid impact on poliomyelitis activity as seen in Brazil, Colombia, Dominican Republic, and Bolivia. In addition, the paralytic forms of the disease are easy to recognize, thereby permitting an early identification of its presence and facilitating rapid implementation of control measures. Once transmission is stopped in the Hemisphere, the possibilities of reintroduction of the disease into the region of the Americas is limited to importation from other regions in the world where transmission of wild poliovirus has not ceased. In addition, from an epidemiological standpoint, poliovirus has no extra human reservoir nor does infection persist in infected individuals. Given this criteria and a population with high levels of coverage with polio vaccine, and therefore a reduced pool of susceptibles, the possibility of reintroduction is further reduced since poliovirus must initiate new infections or fade out. Should reintroduction of the wild poliovirus occur, effective measures can be rapidly organized at a lower cost to control possible spread.

The experience of the United States of America and Canada in the past decade illustrates this point. In both countries, wild poliovirus transmission ceased in the early 1970's. Only on one occasion has wild poliovirus been introduced which resulted in the occurrence of paralytic cases. Although both countries have continuing antipolio vaccination programs, there are areas where immunization coverage is not optimal and where, if the virus were constantly present, outbreaks would be expected. They have not occurred, however. If similar conditions were achieved in all countries of the Americas, cases would cease, even in those population groups which are especially difficult to reach with vaccination programs.

To assure the interruption of transmission, it will be necessary to maintain immunization levels of over 80% in children under one year of age, as stated in the Plan of Action. This coverage level should be sustained over the years, until such a time that global eradication is achieved.

It is therefore proposed that whenever the existing routine services are not able to achieve this level of coverage, special acceleration efforts be made, either in the fashion of national immunization days or weeks, mass-media campaigns to increase the demand by the population, or both. These acceleration efforts should include the other EPI vaccines.

The different approaches will be decided upon as the national workplans are elaborated, taking into consideration the history and achievements of the immunization program in each specific country.

The goal of regional eradication will improve the existing infrastructure and thus sustain the immunization programs in the countries of the Region. In its wake, there will be better trained health staff and a much improved surveillance system, coupled with a public informed of the benefits of immunization and increased demand.

Until global eradication of polio has been achieved, control measures such as vaccination and surveillance must be maintained beyond 1990 to protect the susceptibles from the threat of importation. The interruption of indigenous transmission of wild poliovirus in the American Region deserves immediate Hemispheric action. The necessary elements to ensure program success are assured by strong political commitment coupled with ongoing immunization programs presently shown by the countries and several multilateral, bilateral and non-governmental organizations toward immunization in particular and child survival in general.

2.4 Sustainability

To achieve the interruption of transmission of wild polio virus from the Americas, the project has to assure that a number of immunization activities and procedures are improved and/or maintained at current levels. The key to

achieving the interruption of the transmission of wild polio virus is to ensure that national immunization programs are self reliant in all aspects related to delivery of immunization, disease surveillance and control, and provision of reliable laboratory diagnostic services for analyzing specimens from all suspect cases. In addition, all programs must have staff well trained in management and training skills in order to carry out the program in the future. Though not directly related to infrastructure improvement or maintenance, but equally important, is the mobilization of the community to not only demand immunization services but also assist health authorities in the delivery of immunization services.

In order to ensure that national immunization programs are sustainable this project will specifically provide inputs directed at improving the following components of each national immunization program:

- Improving the capability of national laboratories to provide reliable diagnostic services through the provision of new equipment, and newer methods for polio virus isolation and characterization.
- Provision of cold chain equipment to assure that national cold chains are improved and/or extended to those areas currently deficient or lacking appropriate equipment to permit immunization services to be available routinely.
- Enhance surveillance activities for prompt detection of all suspect cases of poliomyelitis as well as the other EPI diseases in order that immediate control measures be implemented and that routine surveillance information is used to improve program decision-making.
- Improve the supervision of the program by instituting a routine system of supervisory visits which will allow that adjustments to annual work plans are made and that future plans include new approaches or corrections to program implementation.
- Improve health education activities aimed at generating a greater demand for immunization services by changing the health attitudes of the community in order to lead to a sustained demand by the consumer.

- Increase program performance by carrying out operational research. It is through operational research that solutions to operational problems will be found that will ensure that immunization programs meet their targets and sustain their operational capacity into the future.

- Training of managers at the various levels of the health system in planning, management, implementation and evaluation of immunization programs as well as in the various disciplines outlined above.

With the expected increased vaccination coverage and consequent reduction of immunizable diseases among the population, the health services should realize a net savings from not treating children suffering these EPI diseases. These cost savings resulting from reduced disease burden can be used to support other EPI activities and child survival interventions.

More importantly, any cost savings realized from reduced disease burden can be used in the future to cover recurrent immunizations program costs.

With the infrastructure support to be provided by this project and the resulting cost savings from reduced disease burden to the health services, as well as from increased cost effectiveness, this project will directly contribute to the efforts of all governments in sustaining their immunization programs beyond the scope of the project.

3. PROGRAM DESCRIPTION

3.1 Goal, Purpose and Outcomes

The goal of the project is to improve the health and productivity of the population of the Americas through the prevention of immunizable diseases.

The purpose of the project is:

- To strengthen and accelerate the Expanded Program on Immunization in the Region, and its objective of improved child survival, including

the interruption of indigenous transmission of wild poliovirus and thus, the eradication of poliomyelitis in the American Region by the year 1990.

The project outcomes will include the following elements:

- Regional strategy and Plan of Action developed for the eradication of polio by 1990 from the Americas.
- National Plans of Action developed with resources and constraints identified and targets determined.
- Functioning, effective epidemiological surveillance and outbreak control mechanisms in place at regional and national levels.
- Strengthened National Immunization programs and improved polio control activities.
- Strengthened Ministry of Health institutional capacity in planning, implementation, monitoring and evaluation of immunization services in general and poliomyelitis in particular.
- Access to laboratory facilities by all countries for identification of polio virus type.
- Improved strategies and alternatives for increasing immunization services and polio control activities tested in pilot areas.
- Interruption of indigenous transmission of wild poliovirus and eradication of poliomyelitis in the American Region by the year 1990.

3.2 Strategy

The project will begin with the identification of high-risk countries. A major focus is the development of comprehensive national plans to achieve the objective of polio eradication by 1990. AID-funded inputs will facilitate implementation in the various countries. In addition, regional level activities will be undertaken to support country level activities.

3.2.1 Priority Countries for Action

The first step consists of classifying countries according to poliomyelitis activity and vaccination coverage as shown in Table 5. The program will focus on the countries in Groups I and II-A.

Table 5

Risk Status of Poliomyelitis in the Americas, 1984

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 not funded by AID may be placed.

** Countries where AID-funded 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 Islands	Nicaragua
Bahamas	Costa Rica	Panama
Barbados	Dominica	Trinidad and Tobago
Belize	Grenada	Turks and Caicos Is.
Bermuda	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 & Barbuda	Guadeloupe	St. Lucia
Canada	Martinique	St. Kitts-Nevis
Cayman Islands	Montserrat	St. Vincent & Grenadines
Chile	Netherlands Antilles	United States of America
Cuba	Puerto Rico	U.S. Virgin Islands

Although Group I and Group II-A countries may most urgently require intervention, so that on-going transmission can be stopped and prevented from recurring, eradication of poliomyelitis in the Region requires that all Member Countries achieve and maintain at least 80% coverage of children below one year of age.

3.2.2 National Plans of Action

The political commitments were declared when the Resolution on this subject was approved by PAHO Member Countries during the Directing Council Meeting in September 1985.

Member Countries have pledged to increase their financial and manpower commitment to national EPI programs and, specifically, to allocate highest priority to interrupt wild poliovirus transmission.

With technical assistance from PAHO, and with the direct involvement of AID missions and other collaborating (donor) agencies, detailed National Plans of Action will be prepared with the national EPI and other Ministry of Health (MOH) and Ministry of Finance counterparts in each country. The national plan within each country will be a blueprint for planners and immunization program managers to follow. These Plans will define the nature and magnitude of the problems in each component of the immunization programs and will address the following areas of problems and components:

- Programming and evaluation;
- supervision;
- coordination;
- vaccination coverage and disease reduction targets;
- strategies for attaining the targets;
- fiscal planning for the mobilization of national resources, including recurrent costs;
- improvements in national laboratories;
- training activities
- disease surveillance and outbreak control measures;
- information systems and dissemination;
- cold chain;
- vaccine needs for the five year period;
- administration, resources and financing;
- detailed budget with commitments of government and external agencies.

These areas of activities are based on problems already identified in the various national programs which are outlined in the Official Report* generated by the First Regional Meeting of EPI Program Managers, held in Quito, Ecuador in May 1981 and Kingston, Jamaica in September 1981. These problems have been further detected in program reviews performed in every Latin American and Caribbean country within the last four years.

These Plans of Action covering the next five years will serve as the framework for the elaboration of annual work plans which will also contain Timetable of quarterly activities which can then be monitored by national authorities with participation of donor agencies (see Annex D).

In May 1986, PAHO is convening a Regional Meeting on EPI in Washington, D.C., in which Governments will send official representatives with the first draft of proposed national plans of action and workplans to be implemented. Subsequently, it will be asked that other Ministries, particularly Finance and Planning, participate in the preparation of the work plan.

Finally, when work plans are finalized at the national level, a Letter of Agreement should be signed between the Government and donor agencies, and all commitments, external and national should be specified.

Additional agreements between member countries and donor agencies are expected to support and complement these National Plans once PAHO and MOH staff have reached consensus on the Plans. Bilateral agreements with USAID and governments will cover costs not included in this proposal to AID, and are anticipated to provide resources over and above the US\$20,600,000 proposed here.

The national plans of action and annual work plans will also outline evaluation activities using a combination of coverage surveys, program reviews and other epidemiological studies as warranted.

Each country will prepare a financial plan as a part of the Plan of Action. These financial plans will identify capital, recurrent, and manpower

* Immunization and Primary Health Care: Problems and Solutions, PAHO Scientific Publication No. 417, 1981.

costs associated with the eradication effort. Recurrent costs associated with maintenance of the immunization program in the post-eradication era will be projected beyond 1990 to the year 2000 to permit the governments to include necessary outlays into their national budgets.

3.2.3 Country Specific Actions

Ongoing PAHO/EPI activities will be intensified and accelerated. Areas of direct support to Member Countries which are expected to receive assistance through this grant are described below.

Supervision, Surveillance and Outbreak Control

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 into the surveillance activities.

The AID grant funds will enable that:

- PAHO can ensure the availability of expert international personnel to help strengthen epidemiological surveillance in the Region.
- Each suspected case will be investigated immediately. Detailed standardized case investigation forms will be designed and implemented.
- PAHO can provide investigation teams which will be mobilized within 24 to 48 hours of notification of a case to participate in the investigation of an outbreak, the search for additional (secondary) cases, and implementation of control measures. Thorough investigations into the source of the cases will be conducted and rapid analysis will be done with utilization of microcomputers.
- PAHO can ensure that adequate laboratory services are available to all countries through regional level activities, to facilitate surveillance and outbreak control activities at the country level.

A chronic need in national EPI programs is mobility of personnel, which is often constrained by transport fuel and per diem expenses for national counterparts. In limited cases, vehicles will be provided, along with necessary local currency funding, to ensure ongoing supervision and evaluation of program operations at regional and local levels and rapid outbreak investigation and control. Mobilization support will also be critical for national immunization days or special campaigns where such actions are indicated.

Promotion

In order to ensure completion of immunization schedules, reduce dropout rates and encourage community participation, special efforts will be made in the area of health education and motivation using effective communication techniques. Support will be provided in the development and testing of alternative media and messages, as well as its production. Costs of broadcasting time and mass media production will be supported.

Operations Research

Countries will undertake operations research activities aimed at increasing polio vaccine coverage. This could include studies of operational constraints, of dropout rates and community attitudes. The Technical Advisory Group will assist in prioritizing research issues and will provide technical guidance on their execution.

EPI Vaccines and Cold Chain

Countries are expected to order vaccine supplies as needed on a routine basis. To ensure quality control and procurement at the world market price, all vaccines will be purchased through the PAHO EPI Revolving Fund. The vaccine provided by Rotary International will also be purchased through this mechanism. Orders will be placed through the Revolving Fund and after shipment, PAHO will start the billing process directly with Rotary International.

PAHO created the EPI Revolving Fund to assist countries in the Region with these vaccine purchases. The Fund combines vaccine requirements from participating members in order to obtain good quality vaccine at low prices. The establishment of this Fund has allowed member countries to count on the ready availability of vaccines.

The Revolving Fund received strong support from the United States through a contribution of US\$1,686,600. Current capitalization is approximately US\$4.5 million.

Cold chain deficiencies will be identified as a component of the development of National Plans of Action, and the Plans will reflect the needs to be fulfilled. Depending upon the situation in each country, the project will fund refrigerators, freezers, spare parts, tool kits, and vaccine carriers.

Information Dissemination

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

In order to facilitate the analysis of epidemiological and program data (coverage, morbidity and mortality, operational research, administrative and financial), personal computers and accompanying software will be provided to the various countries with funds from AID. These computers will permit project managers to obtain information for routine evaluation of program progress. This will in turn lead to more informed decisions. Because the computers will facilitate the analysis of information, program managers will be able to provide timely feedback to field staff on program problems and progress.

Evaluation

Coverage surveys and program reviews will be conducted as described in section 3.7 below. In addition, AID project evaluations will be conducted at mid-term and in 1990. Two consultants will be funded for four weeks each, including fees, travel and per diem for this purpose.

The above country level activities are expected to receive AID assistance through PAHO. In addition, training and in-country PAHO personnel will be funded through other donor support.

3.2.4 Regional Actions

In order to facilitate and coordinate technical and funding assistance for the development and implementation of National Plans of Action, the following activities will be undertaken.

Personnel

The Regional EPI Office of PAHO/Washington will add technical and administrative staff to coordinate all activities. One project administrative officer and one epidemiologist are to be funded through the AID grant. Short-term expert consultants will also be available and will be funded by PAHO and other donors. Sub-regional advisors will be located in 7 countries. Advisors located in Haiti and Guatemala are to be covered under this grant and will be responsible for the Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, and Panama.

Development of Regional Laboratory Network

The development of the laboratory support will entail inputs such as equipment, reagents and supplies, which will be financed by AID grant funds. In addition, training of personnel, production of manuals and technical assistance will be supported by IDB and PAHO funds.

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 Centers for Disease Control (CDC) in Atlanta, with PAHO's support, will be requested to assist in the development of the laboratory networks and to certify laboratories as reference centers.

The reference laboratories will assist countries in the development of 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. For countries without laboratories, reference laboratories will be identified for their assistance.

As part of the development of the laboratory network, a manual will be produced by PAHO 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 February 1986 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 for quality control. The laboratories equipped for poliovirus isolation studies will be used as reference centers for testing of vaccine potency and quality control, as similar techniques and materials are needed.

The network of laboratories will be comprised of laboratories available at national level and will involve at least 15 countries. Such a network should be able to provide assistance on a regional basis, in close collaboration with the Centers for Disease Control, Atlanta, as well as with other components of the Program. In order to establish this network it is anticipated that technical assistance should be provided to these national laboratories in terms of technical expertise as well as training of personnel and provision of some key items of equipment, supplies and reagents. This will assure the upgrading of these facilities and guarantee the necessary laboratory support to the surveillance activities.

Site visits are presently being made in the various countries to assess laboratories and determine the exact needs for this upgrading. From the preliminary data already available, a tentative distribution of the resources earmarked for Laboratory will be as follows:

a) Equipment:

Centrifuges	US\$150,000
Ultracentrifuges	130,000
Safety cabinets	105,000
Ultra low freezers	84,000
Microscopes	48,000
Spectrophotometers, pH meters	51,000
Lamimar flow hoods	48,000
Sub-total	<u>US\$616,000</u>

b) Supplies:

Plasticware, glassware, filters, TC flasks (10,000/lab/year x 5 years)	
Sub-total	<u>US\$750,000</u>

c) Reagents:

TC media, antisera, antigen, chemicals (4,000/lab/year x 5 years)	
Sub-total	<u>US\$300,000</u>

TOTAL US\$1,666,000

Vaccine Stockpile

Manufacturers will be requested to have 5 million doses of Trivalent Oral Poliomyelitis Vaccine (TOPV) for regional use in case of emergency. PAHO will oversee the inventory of these emergency stocks and allocate distribution when needed.

Information Dissemination

At the Regional level, the PAHO EPI Newsletter (which now reaches approximately 10,000 readers in the Region) 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. The section on polio activities in the Region will be distributed monthly. It is expected that EPI Newsletter circulation will increase so that all health facilities in the region will receive copies. Information should also be disseminated through other PAHO publications.

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

Information Exchange Meetings

To maintain momentum and to facilitate communication in the Region, meetings of EPI program managers and/or polio eradication managers for Latin America and English-speaking Caribbean countries financed by AID grant funds 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 will be published and disseminated in the Region.

Identification of Operational Research Needs

Recognizing that questions remain to be addressed in the field of poliomyelitis eradication and others will likely arise as the effort proceeds, both in technical and operational areas, support for operational research will be provided. Needs identified by the 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 operational research needs will be encouraged by all member nations (see 4.5).

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 lapsed without identification of indigenous cases of poliomyelitis due to wild poliovirus, in the presence of adequate surveillance; (2) Extensive case search by an 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 convene to develop a protocol for determining whether countries can be certified free of wild poliovirus transmission. This commission will review findings of studies conducted and the need to include other criteria to detect wild poliovirus. In addition, the commission will make site visits to the various countries to review each program, and to determine if that country has met the established criteria. Funding for this activity will be provided by AID, PAHO, and other donors involved.

3.3 Program Beneficiaries

The primary program beneficiaries will be children under one year of age in the Region. Of the 16 million children in the Region less than one year of age, those who will directly benefit from the project include 11 million (97%) in Group I countries, and about 400,000 (0.03%) in Group II-A countries (Table 5). Secondary beneficiaries include communities and national governments who will be spared the cost of lost productivity and rehabilitative care. The health sector will benefit from cost savings due to medical care. Regionally and globally, benefits will be available in terms of strengthened delivery systems and laboratory facilities which can be deployed for other priority health problems. It is intended that the health professional and donor community will use lessons learned from the polio eradication program of the Americas, to mount polio eradication efforts in other regions of the world.

3.4 Budget and Financial Plan

Table 6 shows a detailed breakdown of the proposed AID contributions, with projected annual sub-totals through 1990. Excluding contingency funds, mobilization, promotion and operations research comprise over half the budget.

Procurement of equipment, supplies and any vehicles needed will be from US sources or collaborating countries within the Region.

Payment provisions and reporting requirements for the AID contribution are expected to be similar to those arranged for other comparable grants between the two agencies.

The proposed contributions by the five collaborating (donor) agencies for functional components of the program appear in Table 7, PAHO will contribute US\$4,650,000 to the project.

Recurrent costs beyond 1990 for maintaining the program are expected to be covered by in-country health sector budgets.

In-country costs during the life of this project are to be covered by the participating countries. This may include bilateral agreements between USAID country missions and each government as well as agreements between in-country field offices of other donor agencies. These arrangements are expected to be finalized during the first year of the program and will be included in National Plans of Action.

Table 6
Proposed AID Budget* In Thousands of US Dollars**

ITEM	1986	1987	1988	1989	1990	Total
A. <u>PERSONNEL</u> ***						
Project Adm. Officer (Washington)	96	86	85	96	95	458
Epidemiologist (Washington)	96	86	85	96	95	458
Epidemiologist (Haiti)	96	86	85	96	95	458
Epidemiologist (Guatemala)	96	86	85	96	95	458
Subtotal	384	344	340	384	380	1,832
B. <u>MEETINGS</u>						
TAG Meetings (2 per year)	40	42	44	47	49	222
Program Project Managers Meeting (1 Meeting per year)	60	63	66	69	73	331
Subtotal	100	105	110	116	122	553

* The budget is shown for U.S. Fiscal Years which cover the period October 1 through September 30. For example 1986 covers the period 1 October, 1985 through 30 September, 1986.

** These figures are adjusted for inflation using a compound inflationary factor of 5% per annum.

*** All personnel are in new posts. Per diem and travel for these personnel will be paid under supervision and surveillance (see item G). Cost of each post includes:

- 1) Salary
 - Post adjustment
 - Dependent allowances
- 2) Pension Fund
 - Insurances
 - Terminal payments
- 3) Recruitment and installation
 - allowances
 - Education grant

C. LABORATORIES

Equipment, Supplies, and Installations (15 countries)	250	525	551	340	-	1,666
Subtotal	250	525	551	340	-	1,666

D. INFORMATION DISSEMINATION

Computer Services (hardware and software for 20 countries)	30	32	33	35	37	167
Subtotal	30	32	33	35	37	167

E. EVALUATION

Coverage Surveys (40,000 each country x 27)	120	240	320	240	160	1,080
Program Reviews (10,000 each country x 45)	60	90	100	100	100	450
AID Project Evaluation (Salary, per diem, travel for 2 persons, 1988 10 countries 1990 15 countries)	-	-	30	-	50	80
Subtotal	180	330	450	340	310	1,610

F. PROMOTION

Development, production and broadcasting costs (15 countries)	700	850	700	600	500	3,350
Subtotal	700	850	700	600	500	3,350

G. SUPERVISION, SURVEILLANCE AND OUTBREAK CONTROL

1) Inter-country personnel (Airfare, local travel & per diem)						
- 2 PA/O/Washington staff *	30	35	40	45	50	200
- 2 Sub-regional staff.*	16	20	25	30	35	126
2) New vehicles (20x \$900)	180	-	-	-	-	180
Fuel and maintenance.	421.2	421.2	421.2	421.2	421.2	2,106
Per diem (20 countries)	328	328	328	328	328	1,640
Subtotal	975.2	804.2	814.2	824.2	834.2	4,252

* AID funded posts.

H. INTERNATIONAL CERTIFICATION COMMISSION

Development of Protocol International team of 4 investigators (travel and per diem)	6.8	6.8	-	-	5.4	19
	-	39	60	89	163	351
Subtotal	6.8	45.8	60	89	168.4	370

I. COLD CHAIN

Refrigerators, Cold rooms, spare parts, tool kits	200	500	100	100	106	1,006
Subtotal	200	500	100	100	106	1,006

J. OPERATIONAL RESEARCH

2 countries yearly	500	525	551	290	305	2,171
Subtotal	500	525	551	290	305	2,171

TOTAL	3,326	4,114	3,778.2	3,160.2	2,824.6	17,203
CONTINGENCY	156	203	219	192	212	982
OVERHEAD	440	573	660	538	430	2,641
GRAND TOTAL	3,922	4,837	4,588.2	3,848.2	3,404.6	20,600

Table 7
Tentative Budget by Donor Agency and Component
(In Thousands of Dollars)
1986-1990

ITEM	USAID	PAHO	IDB	UNICEF	ROTARY	TOTAL
<u>Personnel</u>						
Inter-Country	1,832	1,900				3,732
In-Country			1,650			1,650
Consultants			1,750			1,750
<u>Training</u>			2,100			2,100
<u>Meetings</u>	553	250				803
<u>Laboratories</u>	1,666	200				1,866
<u>Information</u>	167	350				517
<u>Evaluation</u>	1,610	600				2,210
<u>Promotion</u>	3,350			750		4,100
<u>Supervision & surveillance</u>						
	4,252			1,750		6,002
<u>Certification</u>	370					370
<u>Cold Chain</u>	1,006	500		2,000		3,506
<u>Research</u>	2,171	200				2,371
<u>Vaccine</u>					10,700	10,700
<u>Contingency</u>	982			500		1,482
<u>Overhead</u>	2,641	650*	1,100	*	**	4,391
<hr/>						
TOTAL	20,600	4,650	6,600	5,000	10,700	47,550

* Overhead costs associated with UNICEF's contribution will be covered by PAHO.

** Overhead costs associated with vaccine procurement will be covered according to regulations of the Revolving Fund.

3.5 Implementation, Management and Coordination

The implementation of the project will be multi-pronged focusing on those countries classified as Polio-Infected, followed by those countries classified as higher and lower risk.

In those countries classified as polio-infected, staffing of in-country technical advisors as well as inter-country advisors will be the first order of priority. Following this, the development of national plans of action and country annual work plans will be developed by all countries in order that training and infrastructure needs are identified. The first draft of the national plans of action will be discussed in Washington, D.C. at annual meeting of EPI program managers in May of 1986 (see 3.2.2). The development of the national plans of action and annual work plans will be prepared with the participation of PAHO, AID, IDB, UNICEF, and Rotary International.

The national plans of action and annual work plans developed by the countries will simultaneously call for among others (see 3.2.2), the following activities to be undertaken commencing in the first year of the project:

- Accelerated vaccination programs to increase coverages and control disease transmission in those countries with coverages of less than 80% and/or are reporting polio cases due to the wild virus.
- Improvements and extension of the cold chain.
- Training in:
 - Epidemiology and disease surveillance and control (especially poliomyelitis);
 - Laboratory Virology;
 - Cold Chain;
 - Supervision.
- Increase surveillance and supervision activities for stopping the transmission of wild polio virus.
- Development and production of health educational material.
- Mass media campaigns to increase awareness and demand for immunization.

As mentioned previously, those countries classified as polio-infected will receive higher priority in the implementation of the activities listed in their work plans. The planned activities will be carried out during the life of the project. In some countries certain activities will be implemented with greater acceleration and intensity owing to the nature of the polio problem and/or to rapidly increase infrastructure support for improving program performance.

To support activities of each country, PAHO will provide administrative support for procuring the necessary vehicles and cold chain equipment, as well as providing the funds necessary for fuel and per diem.

Independently of the staffing of country programs and preparation of the national plans of action and annual work plans, PAHO will undertake the review of national laboratories in order to quickly establish a network of regional laboratories for providing diagnostic services to the countries for analysis of suspect polio specimens. The review will outline those labs are in good position to support the countries of the region as well as determining the necessities for training and upgrading of lab equipment.

During the course of the first year of the project and thereafter, operational research in one or two areas will be initiated. The TAG will advise which areas of research are of high priority for implementation of the project. In addition, PAHO will begin work on the development of a certification protocol for determining if countries are polio free. In the second year of the project and subsequent years, a certification commission will begin to visit those countries which are classified or will be classified as lower risk countries and which are shown to have good surveillance systems.

The overall implementation of the project in each country may be revised as a result of program reviews. In addition, changes to national annual work plans and PAHO's annual work plans will be made as a result of these reviews.

To guide the implementation of the project and assist PAHO in the management of the project, PAHO will convene AID-funded annual meetings of national immunization program managers for preparing their national plans of

action and yearly work plans. At these meetings PAHO will provide technical assistance to countries which request it. In addition, information from program reviews, coverage surveys, and special studies for each country will be used in the formulation of these plans.

To assist in the implementation and management of country activities, PAHO will make available its technical staff or provide consultants. In those countries classified as polio-infected, PAHO will place in-country technical advisors to assist the national immunization manager.

Once national plans of action and annual work plans have been formulated for each country, budgets will be prepared in order that the financial resources for each country's plan are identified. PAHO will establish a special fund for managing project funds, from which annual disbursements will be made to each country based on annual work plans. Project funds will be disbursed according to the fiscal calendar shown in item 3.4. Funds for each country will be provided through the normal budgetary and accounting procedures which PAHO has in place for transferring normal program funds. At the country level, all funds will be managed by the PAHO field offices.

On the Regional level, PAHO will convene a Technical Advisory Group (TAG) for advising PAHO on implementation of the project (see Annexes). To assist the countries in determining the mix of appropriate inputs of human, technical and financial resources for supporting the implementation of the project, the Inter-Agency Coordinating Committee (ICC) will assure donor agencies coordination at national and international levels.

One of the more important management tools for managing the implementation of the project will be the program reviews to be held in each country at least twice during the course of the project, as well as the mid-term evaluation of the project by PAHO-AID.

The overall Regional implementation, monitoring, and logistical support to the project will be managed and provided by PAHO/EPI staff, both central level and inter-country staff. For this purpose the AID-funded project will enable the establishment of two new inter-country technical advisors, as well as two new administrative/epidemiological posts at the central level for meeting the

increased administrative demands expected from this country (see section 3.5). PAHO will also provide increased technical support for developing the regional network of laboratory and another epidemiologist for supporting field activities in the countries.

Finally, to support the countries in the procurement of vaccines, equipment and other supplies, and providing technical services to the countries PAHO will use its established administrative mechanisms and procedures.

In order to assure that all countries have sufficient polio vaccine for control of outbreaks, PAHO will establish a reserve stock. This, as well as the other EPI vaccines, will be procured through the EPI Revolving Fund. This Fund establishes annual contracts with approved vaccine suppliers based on competitive bidding. Cold chain equipment and syringes can also be procured via the Fund in a similar fashion.

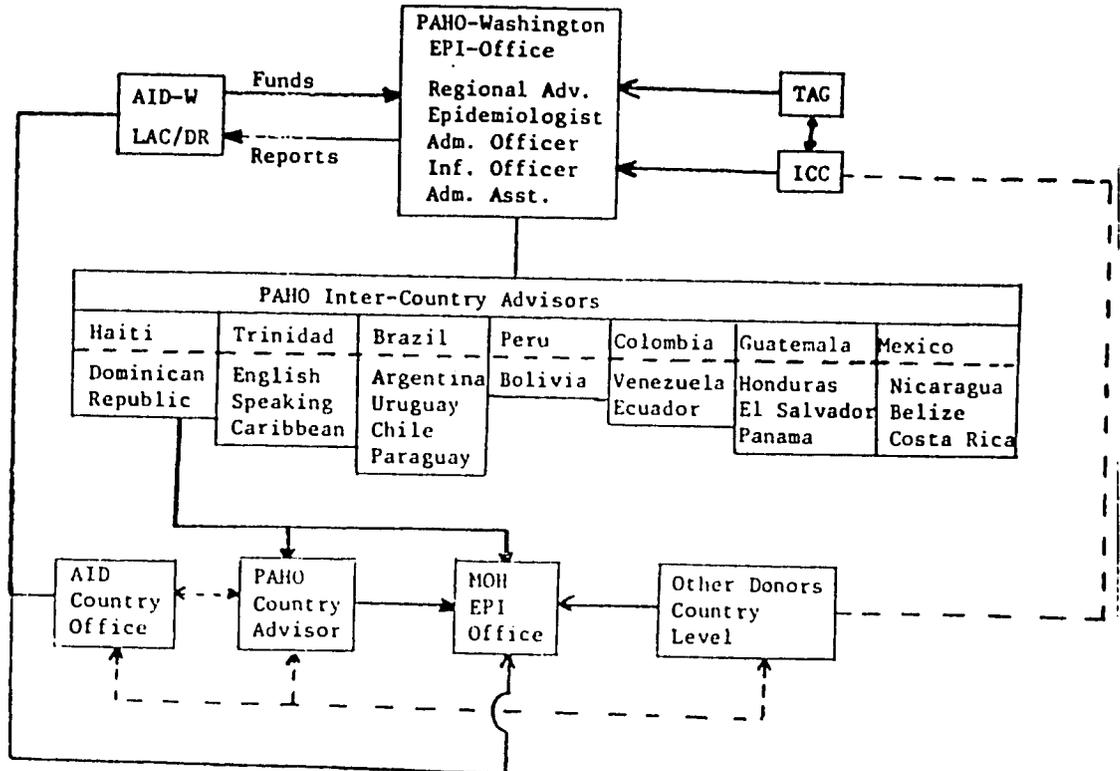
For the provision of technical services, PAHO has a variety of contracts for hiring additional personnel. PAHO's personnel department will be administratively responsible for managing this using the PAHO/WHO procedures which are well established. The EPI office in Washington will provide the terms of reference for each contract for the provision of technical services (see Timetable, Annex E).

Figure 3 contains an overview of the relationships among PAHO, AID and organizational elements of the project. The elements are:

- PAHO's EPI Office in Washington, D.C. to coordinate and manage the program region-wide.
- A Technical Advisory Group.
- An Inter-Agency Coordinating Committee representing donors.
- National EPI offices in the Ministries of Health.
- AID-Washington Office
- AID-Country Offices
- PAHO Inter-Country Advisors
- PAHO Country Advisors
- Other Donors - Country Level

Figure 3

Organizational Chart



3.5.1 Coordination

Because of the multi-donor funding of this program, and because the success of the eradication effort depends upon the participation of every country in the Region, the coordination is a key element of the project. Activities at the international, national, and regional levels will be undertaken throughout the life of the project as follows:

a. PAHO/Washington, D.C.

The Regional EPI office will coordinate all activities related to the eradication effort. All reports and requests for assistance from the field 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 to its member countries. Assistance of expert consultants from outside the organization will be coordinated by PAHO and provided as needs arise and may include epidemiologists, virologists, laboratory technicians, cold chain specialists, mass media experts in health education, economists and financial management experts.

In addition to the country and sub-regional level personnel, additional support personnel will be 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). The AID-financed administrative officer will assist in the planning, management and implementation of the project, including its budgetary and financial aspects. The AID-financed epidemiologist will 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. Increase in data collection and processing will have additional statistical support staff to be funded by PAHO.

b. Technical Advisory Group (TAG)

To assist in guiding the activities of the eradication effort, a Technical Advisory Group (TAG) has been formed, composed of experts in the field of immunizations and polio. The TAG is composed of a core of five individuals, and will call on additional experts as needed to address special problem areas. At least one member of the TAG is 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 is to advise on technical components of the program. Strategies to achieve required vaccine coverages, 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 semi-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 was held in July 1985, to review the Plan of Action that subsequently was approved by the PAHO Directing Council in September 1985, (Annexes A and B). Members of the ICC (see following section) will participate at the TAG meeting.

c. Interagency Coordinating Committee (ICC)

To ensure the coordination of all international agency inputs, an Interagency Coordinating Committee with representation from international agencies (e.g. PAHO, UNICEF, Rotary, AID, IDB, and the Task Force for Child Survival) 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 individual country planning stage to guarantee the coordination of donor inputs into the countries. The first meeting of the Coordinating Committee was held in July 1985 to review the Regional Plan of Action and identify the types of assistance each of the agencies could provide in the effort. The PAHO EPI program office serves as Secretariat to the Coordinating Committee.

A member of the TAG will participate in the ICC meetings in order to advise ICC members of progress to date and problems encountered in the eradication effort. In addition, the TAG member will identify problem areas which may require reallocation of resources or new inputs in order to achieve the interruption of the transmission of wild poliovirus.

d. Country and Sub-Regional Level

Countries will be requested to appoint an individual in charge of the polio eradication effort as a member of the national 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 will 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 multilateral and bilateral assistance.

The MOH-led task force or coordinating group will meet periodically (approximately quarterly) throughout the life of the project to develop National Plans of Action, annual work plans and to review findings of evaluations, Program Reviews, Coverage Surveys, results of special studies and other monitoring activities. This group will include representatives of donor agencies such as USAID, as well as representatives of key health and non-health implementing agencies in the public and private sectors. Donor agency representatives will participate in program reviews, coverage and morbidity surveys and evaluations. Widespread dissemination of information regarding the project is also expected to be undertaken through local newsletters and distribution of reports of program reviews and surveys.

It is anticipated that IDB funds will enable the placement of eleven epidemiologists/technical advisors in countries classified as Group I. These advisors will preferably be nationals and will assist the Ministries of Health 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. This personnel is in the process of being identified.

Countries were selected for placement of the 11 epidemiologists/technical advisors based on the magnitude of the problems which have impeded the development of sustainable immunization services, the number of polio cases reported with the last three years and the relatively low vaccination coverages.

At the sub-regional level (inter-country), seven epidemiologist posts are needed (of which five are already available and funded by PAHO, and two to be funded by AID), to serve as technical advisors on an international basis and to provide support and supervisory assistance to the inter-country personnel: (Table 8). They will: assist and cooperate in assessing needs for special intervention in the countries under their jurisdiction, participate on the polio investigation teams' certification visits, train personnel at all levels, procure vaccines, in design of cold chain systems, preparation of manual for improving supervisory and surveillance system, and in general provide direct technical cooperation when needed.

Table 8

PROPOSED LOCATION OF SUBREGIONAL ADVISORS

<u>Location of Advisor</u>	<u>Countries in Subregion</u>
GUATEMALA *	Guatemala El Salvador Panama Honduras
MEXICO	Mexico Nicaragua Belize Costa Rica
HAITI *	Haiti Dominican Republic
COLOMBIA	Colombia Venezuela Ecuador
PERU	Peru Bolivia
BRAZIL	Brazil Argentina Uruguay Chile Paraguay
TRINIDAD & TOBAGO (CAREC)	English-speaking Caribbean and Suriname

* AID funded.

3.6 Timetable (see Annex E)

The following is a preliminary timetable of activities:

- TAG Meetings 7/85 and semi-annually thereafter
- ICC Meetings 7/85, 10/85, and annually thereafter
- Country classification 1985
- National Plans of Action Developed 1985, 1986 and revisions thereafter
- Personnel hired 1985, 1986
- Cold Chain needs inventoried 1985, 1986
- Program Reviews 1986, continued to 1990
- Information Dissemination 1985, continued to 1990
- Certification Commission 1985, 1989, 1990
- Training Manual 1986 and thereafter
- Stockpile of TOPV Vaccine 1986 and thereafter
- Research Priorities Established 1986, and annually thereafter
- Training local personnel 1986, continued to 1990
- Operational Research 1986, continued to 1990
- Equipment Procured and Installed 1986, 1987
- Surveillance and outbreak control mechanisms in place 1986, continued to 1990
- Promotion Campaigns 1986, continued to 1990
- Coverage Surveys 1986, continued to 1990

3.7 Evaluation

3.7.1 Plan for AID Financed Project

The main elements of the evaluation of the multi-donor program for the eradication of poliomyelitis will be coverage surveys, program reviews, laboratory evaluations, TAG meetings and disease reports from countries. In addition to these, the AID financed project will be evaluated by a team of experts at mid-term in 1988 and at the end of the project in 1990. This team will draw information on basic conditions and progress towards the

achievement of program goal and project purpose from reports on coverage surveys, program reviews and other elements of the multi-donor program evaluation. They will collect additional detailed information on AID financed inputs and outcomes.

3.7.1.1 Evaluative Elements

For the AID financed project, these include baseline information; targets and indicators; planning assumptions and causal factors.

(i) Baseline. A summary of existing baseline information on poliomyelitis morbidity and mortality and coverage with polio vaccine is given in Section 2.1 of this proposal. The baseline on program activities will be provided in each National Plan of Action.

(ii) Targets and Indicators. (See Annex F, Log Frame)

Goal (see Log Frame, page 1).

Purpose (see Log Frame, page 1).

AID Financed Outcomes

- a. Functioning, effective epidemiological surveillance and outbreak control mechanisms in place at regional and national levels (see Log Frame, page 3).
- b. Strengthened national immunization programs and improved polio control activities (see Log Frame, page 4).
- c. Strengthened MOH institutional capacity in planning, implementing, monitoring and evaluating immunization services in general, and poliomyelitis in particular (see Log Frame, page 4).
- d. All countries of the region have access to laboratory facilities for identification of poliovirus type (see Log Frame, page 5).
- e. Improved polio immunization services tested in pilot areas (see Log Frame, page 5).

AID Inputs (see Log Frame, page 7).

- (iii) Assumptions and Causal Factors. External factors outside the scope of the project design, but important to the success of the project are listed under the column heading of "Important Assumptions" in the Log Frame. See page numbers listed above for assumptions underlying AID financed outcomes, inputs, purpose and goal. For a description of project strategies, technologies selected and the level and type of resource inputs which may be important causal factors in achieving project targets, see section 3.2 and section 4 of this proposal.

3.7.1.2 Arrangements for Evaluation of the AID Financed Project

A team of experts representing the fields of epidemiology, immunizations, economics and evaluation will conduct a mid-term and final evaluation of the AID financed project. An estimated 6 to 8 weeks will be spent in selected countries and at PAHO headquarters to collect the following information:

- a. Progress in reaching the program goal and project purpose targets based on a review of the following sources of information:
 - (i) Disease reports in the form of weekly telexes sent by each country on the status of polio cases and of other immunizable diseases.
 - (ii) Coverage surveys completed on polio and other immunizations.
- b. Progress in reaching AID financed project output targets based on:
 - (i) Program reviews completed.
 - (ii) Annual evaluations of the laboratory network.
 - (iii) Technical Advisory Group meetings reports.
 - (iv) Reports of annual meetings of the EPI and polio eradication program managers from participating countries.

- (v) Visits to selected country program operation sites, laboratories and operational research sites.
 - (vi) Short-term and long-term consultant reports.
 - (vii) Other as deemed necessary by AID, PAHO and collaborating countries at the time.
- c. AID Inputs. Review of grant agreements, schedule of obligations and reimbursements.

The evaluation team will work closely with staff of PAHO and collaborating countries and institutions. The scope of work will include identification of constraints, deviations from planned targets, revised targets and schedules, recommendations for overcoming problems and a timetable for implementing the recommendations, as they relate to the AID financed project. The team will be jointly selected by PAHO and AID.

3.7.1.3 Schedule

The mid-term evaluation will be conducted during calendar year 1988. The final evaluation will be conducted during calendar year 1991.

3.7.1.4 Budget (see Table 6, item E)

3.7.2 Program Evaluation and Reports

Recognizing the critical nature of evaluation for monitoring success and detecting and resolving problems, there will be increased emphasis on the EPI evaluation component. The key components of program evaluation will be coverage surveys, program reviews, laboratory evaluation, TAG meetings and disease reports from countries.

Because of lack of adequate information, program reviews and/or coverage surveys will be carried out prior to the elaboration of National Plans of

Action where necessary. Project inputs can thus be carefully matched to the actual status of each national EPI program, and to the local polio situation. Coverage surveys and national EPI program reviews will be repeated, as needed, to monitor and evaluate the progress of the eradication effort. International observers will participate in all country program reviews and reports of findings will be widely distributed.

Coverage surveys on vaccination 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.

Program reviews: The Pan American Health Organization (PAHO) has designed a methodology for carrying out multidisciplinary reviews of the Expanded Program on Immunization in the Americas. These reviews aim to identify the principal problems which are impeding program progress; to study possible solutions, expressed in the form of recommendations; and to design a plan of action to implement these recommendations. Another important aspect of the methodology is that the team is formed of national officials of the corresponding Ministry of Health, with multidisciplinary representation. AID and other donor agencies will be invited to participate in program reviews.

The review covers:

- a) A study of current EPI operations at all levels of the health system.
- b) Identification of the accomplishments and limitations of the EPI.
- c) Design of recommendations for surmounting the problems; and
- d) Development of a timetable for implementing the recommendations.

Sources of data include:

- Review of immunization data available at the central level;
- Field visits to the administrative (State Health Service) and operational (health establishment) levels.

- Studies in the Ministry of Health of administrative activities of the EPI and related entities (including maternal and child health, epidemiology, information systems, programming, and the cold chain) by means of interviews with the persons in charge of these activities.

In the study of EPI operations, the following areas are emphasized as being of critical importance to immunization:

- The cold chain: equipment and procedures for the preservation of biologicals;
- the system for delivery of vaccines and other supplies;
- the system for reporting immunizations administered;
- training of EPI personnel;
- immunization strategies employed;
- the promotion of immunization and community participation;
- the epidemiological surveillance system; and
- coordination among health institutions.

Laboratories

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.

Disease Reports

Weekly telexes will be sent to PAHO by each country, on the status of polio cases. The analysis of data will be supported by computer hardware and software provided under this project. Other local costs will be covered in national budgets.

Technical Advisory Group

TAG meetings will be used to review the overall strategy and technical feasibility of program activities from time to time.

Reports to AID

- A. National Plans of Action. Copies will be provided to AID as they are developed. All Group I and II-A countries are expected to have National Plans by December 1986.
- B. Annual Country Work Plans will be provided by PAHO covering the entire regional Plan of Action.
- C. Quarterly Progress Reports. PAHO will submit quarterly progress reports and each will contain:
- regional, sub-regional and country level activities, achievements and constraints.
 - any modifications in the Regional or National Plans of Action.
 - Financial statement on expenditures.
 - Proposed work plan for the following quarter.
- D. Final Report. This will contain coverage rates, cases reported, outcomes and beneficiaries reached. Financial data will be provided, and achievements, lessons learned and future plans will be described.

4. TECHNICAL ANALYSIS

Poliomyelitis is an acute viral infection with severity ranging from inapparent infection to a non-paralytic febrile illness, to an aseptic meningitis, to paralytic disease and possible death. Symptoms include fever, malaise, headache, nausea and vomiting, excruciating muscle pain and spasms, and stiffness of neck and back with or without flaccid paralysis, the hallmark of the disease. The infectious agents are the poliovirus types 1, 2 and 3, with all types causing paralysis.

4.1 Surveillance and Information Systems

Because national health information systems are often incomplete or poorly developed, sample surveys will be conducted periodically in order to assess TOPV and other EPI vaccine coverage. Such surveys have already been carried out in several countries of the Region.

In view of the relatively small number of cases being reported annually in the Region, every suspected case is expected to be investigated immediately. This is one of the most critical components of the eradication effort. Case investigation will be carried out according to the definitions set out in a manual following PAHO guidelines. 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.

Case identification and reporting will include weekly calls to all facilities that might see acute or convalescent cases as 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 send PAHO weekly reports by telex 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 make experts available in the field of surveillance. 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.

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.

4.2 Outbreak Investigation and Control

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 investigation teams will be available to assist in investigations of outbreaks, search for additional cases and implementation of control measures.

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.

4.3 Training

This component, which is anticipated to be funded by the IDB grant, will put major emphasis on training personnel in the additional areas of program operations critical for success of the program. To assist in this endeavor, PAHO/EPI 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.

Within each country, systematic manpower training will be carried out on national, regional (mid-level) and local levels. On the national and regional levels, a core group of EPI trainers, or "multipliers" will be trained. Modular training materials, whose successful use has been widely demonstrated in the Region in recent years, will be prepared and adapted. Major areas of training will include:

- Epidemiology of polio (and other EPI diseases);
- laboratory skills in polio identification;
- vaccine use, conservation and programming of local vaccine needs;
- outbreak investigation and polio control measures.

The project will train approximately 4,000 workers in the health sector in various components of the immunization programs. The bulk of the training will consist of short-term in-service training workshops conducted in each country for trainers of health personnel at all levels of the health system, particularly those involved in MCH and child survival activities as well as those involved with disease control, which are crucial for the immunization programs in general, and polio eradication program in particular.

The following list illustrates the content of training activities:

- Preparation and dissemination of materials for training in epidemiologic surveillance and methods of control;

- Preparation of materials for orientation courses to update virologists in selected countries;
- Planning, coordinating and conducting national and international training programs in the laboratory diagnosis of poliomyelitis and non-polio enterovirus at both conventional and molecular levels;
- Training for supervisors and health workers in cold chain operations and preventive maintenance.
- Training/retraining of laboratory personnel for performing poliovirus isolation and characterization studies;
- Development and execution of a continuing education program or in-service training for each category of health worker involved in EPI in general and polio eradication in particular regarding technical and operational aspects of the program.
- Training of international response teams in outbreak investigation and methods of control.

The projected timetable of training activities is as follows:

<u>Training</u> (No. of courses and seminars)	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>Total</u>
Cold Chain	8	10	10	8	6	42
Epidemiology and Surveillance	8	10	12	8	6	44
Laboratory	8	10	11	8	6	43
Maintenance	8	10	11	8	6	42
Planning/Evaluation	<u>8</u>	<u>10</u>	<u>10</u>	<u>8</u>	<u>6</u>	<u>42</u>
TOTAL	40	50	54	40	30	213

Training workshops will be conducted at various target countries directly at regional and local levels as well as in collaboration with national training institutions.

Training expenses will include production and reproduction of materials; local organization of workshops; mobilization of personnel and trainers. All training expenses will be paid in local currency.

4.4 Laboratories

Support to surveillance activities

A major component of surveillance activities will be laboratory studies 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 identify 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.

Laboratory evaluations

All countries should have access to laboratory facilities for poliomyelitis studies and PAHO/EPI will assist for the necessary laboratory support. A team of internationally recognized virologists, under the auspices of PAHO, is presently evaluating laboratory facilities available in the Region to identify those to be included in a Regional network. This process will be completed by January 1986. 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.

Virus isolation and serological capabilities to perform poliovirus and other enterovirus laboratory 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 more sophisticated viral identification studies (nucleic acid hybridization and oligonucleotide mapping) will be developed in two or three reference laboratories.

Laboratories capable of performing 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.

4.5 Operational Research

The Technical Advisory Group will review ongoing activities and identify areas for operational research. This will include identification of funding sources for grants, review of protocols and review of research results. Once areas have been identified, the mechanism to initiate research will be facilitated by PAHO.

Possible areas for operational 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; and
- simpler diagnostic methods.
- improved inoculation procedures and equipment for injectable vaccines;
- failure of host infectability.

4.6 Vaccination Tactics

The vaccination tactics recommended to achieve the goal will vary as well, depending upon each country's level of poliomyelitis activity, level of 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 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. National immunization days are recommended for Group I countries for the following reasons: to rapidly increase vaccination coverages so as to protect children from paralytic polio and other diseases; interrupt reduce the transmission of wild poliovirus and for the control of ongoing polio outbreaks. 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 multilateral and bilateral, and participation of non-governmental sectors in these efforts will be essential for success. This tactic will be viewed as an ad hoc measure, to be gradually replaced by regular immunization services performed routinely by health services.

Advantage will be taken of the national immunization days to administer DPT and measles vaccine as well as tetanus toxoid vaccine for women of childbearing age..

As alluded to earlier, countries classified in Group II will need to maintain coverages of at least 80% of the target population by reinforcing routine immunization services and to maintain high levels of surveillance.

4.7 Vaccines and Cold Chain

All countries will ensure that the vaccines used in the program meet WHO requirements. Vaccine distribution will be a key component of immunization activities. Adequate distribution systems will be essential to ensure that vaccines are available at the delivery points on the scheduled days. Most countries in the Region have developed adequate systems for distribution of vaccines. However, on a country-by-country basis, logistical systems may have to be improved. This may include restructuring the distribution points for vaccines and changing the frequency of distribution of vaccines to improve efficiency.

Cooperation from donor agencies includes 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 and equipment that is energy efficient.

4.8 Community Promotion and Health Education

Intensive mass media campaigns will be undertaken in Group I countries. The design phase of these campaigns will consist of reviewing quantitative studies and qualitative research such as through focus groups and anthropological methods to identify existing attitudes, knowledge and behaviour in communities regarding immunization and poliomyelitis. Priority messages will be developed and carefully pretested. A variety of communication channels including the mass media (radio, T.V., posters) and face-to-face education will be used. Outreach workers from non-health sectors will be recruited and trained to support the effort. Target behaviour consists of participation in immunization days, seeking three or more doses of polio vaccine for children under one year of age and case reporting in conformance with the surveillance and outbreak control protocols of the program.

5. ECONOMIC ANALYSIS

5.1 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 be safely 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 in Brazilian hospitals (ranging from US\$100 to US\$800), and that the average cost for rehabilitation was US\$2,400 (ten years). At US\$2,653 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). Though the extent of rehabilitation received by any one patient is

* Estimated maximum underreporting of 80%.

not well documented, for purpose of this discussion it will be assumed that all cases receive both acute care and rehabilitation. It takes no account of loss of income due to paralysis, nor the loss of life. If such calculations were made, they would yield staggering figures in net loss to the individuals, to the family and to the economy of the nations in productivity losses and waste of manpower resources.

To interrupt indigenous transmission of wild poliovirus will cost the Region about \$120 million over five years, or \$24 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. The savings will continue after the five-year eradication campaign. From 1990 onward, the cost of keeping children under 1 year of age vaccinated and maintaining the eradication of polio should drop to only \$10 million per year. The \$10 million dollars will cover recurrent costs associated with salaries, maintenance of the cold chain and vehicles, per diem and travel for investigating possible outbreaks, laboratory services for diagnosis of specimens, procurement of vaccine and syringes, health education efforts and material and supplies (i.e. telephone, paper, reports and others). 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 \$30 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 \$213.6 million. This estimate includes savings of \$66.7 million over the five years of the eradication campaign (less than \$80 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 almost twice over in reduced medical costs alone.

At present it is estimated, and recent data from Brazil reinforces this estimation, that underreporting of polio in the region may be over five times. This was the assumption utilized in the analysis made and presented in the proposal.

In the absence of a strengthened surveillance system, the real number of cases, and overall impact of the immunization program in the various countries cannot be determined, in spite of the fact that there has been reduction in the number of polio paralytic cases being reported.

On the other hand, the reduction that has been observed partly was possible in view of the acceleration of the EPI in several countries that aimed at polio elimination, such as Brazil, Mexico, Bolivia, Dominican Republic and Colombia.

As coverage declines, the occurrence of outbreaks of greater magnitude is unpredictable, but most likely the disease may return to the levels observed in 1980 or 1981.

The example of Jamaica better illustrates this fact:

After over five years of "reporting" zero cases, and in the absence of reliable surveillance system, probably due to false confidence, levels of coverage declined and a large outbreak occurred in 1982, with over 50 cases, bringing considerable damage to the health of these individuals and considerable economic burden to the country's economy, both in terms of extra emergency costs to control the outbreak as well as in lost revenues due to decline in tourism during the period of the outbreak.

The external funds that will be utilized in this project will ensure that the surveillance system is built up and that supervisory systems are in place to guarantee the sustaining of high levels of coverage and the eventual eradication of the wild poliovirus.

Without these additional resources, it will be very difficult for the countries to organize these needed surveillance systems and it can be assumed the levels of coverage will decline due to the lack of supervisory systems.

5.2 Recurrent Costs

To assist the Ministries of Health in improving the financing and budgetary planning of the recurrent costs associated with their immunization programs the project will work to define the recurrent costs for each component. The recurrent costs for each component will be identified in their annual work plans. It is expected that each annual work plan will improve in its definition of what are the recurrent costs and actual costs attached to each recurrent cost item. Therefore, before the end of the project, each Ministry of Health will know the yearly recurrent cost financing that must be submitted to their governments for funding.

In addition, certain recurrent cost items such as production of health educational materials and their promotion can be financed by the community. This has been shown in Colombia during their national vaccination days in 1984 and 1985 where the community provided the means for promoting the national vaccination days. In this respect, community organizations such as Rotary Clubs can have an important role to play in mobilizing the necessary community resources to support some of the recurrent costs associated with immunization programs and health education activities.

One of the outcomes of this project will be to quantify the impact of financing the recurrent costs associated with national immunization programs. This will serve to provide the political leverage necessary for Ministries of Health to better argue with their governments the importance of obtaining the necessary recurrent financing. Moreover, the cost savings attributed to disease reduction will have been shown which should also convince political and financial decision makers of the cost-benefit of financing recurrent immunization costs.

It may be, however, that certain countries at the end of the project may not be in a position to cover all recurrent immunization costs. This will be evident in their annual work plans where the cost associated with recurring activities will not be covered by the said Ministries. In these cases, donors will be asked to cover a portion of the national recurrent costs until such time that these governments are in a position to finance them.



PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau, Regional Office of the
WORLD HEALTH ORGANIZATION

EPI-85-102

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:

- Dr. José Manuel Borgoffo
Chief, Office of International Affairs
Ministry of Health
Santiago, Chile
- Dr. Donald A. Henderson (Chairman)
Dean, Johns Hopkins University
School of Hygiene and Public Health
Baltimore, Maryland
- Dr. Alan Hinman
Director, Division of Immunization
Centers for Disease Control
Atlanta, Georgia
- Dr. Jesús Kumate Rodríguez
Vice Secretary of Health Services
Secretariat of Health
Mexico D.F., Mexico
- Dr. Joao Baptista Risi, Jr.
Secretary, National Secretariat of Basic
Health Actions, Ministry of Health
Brasília, Brazil

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

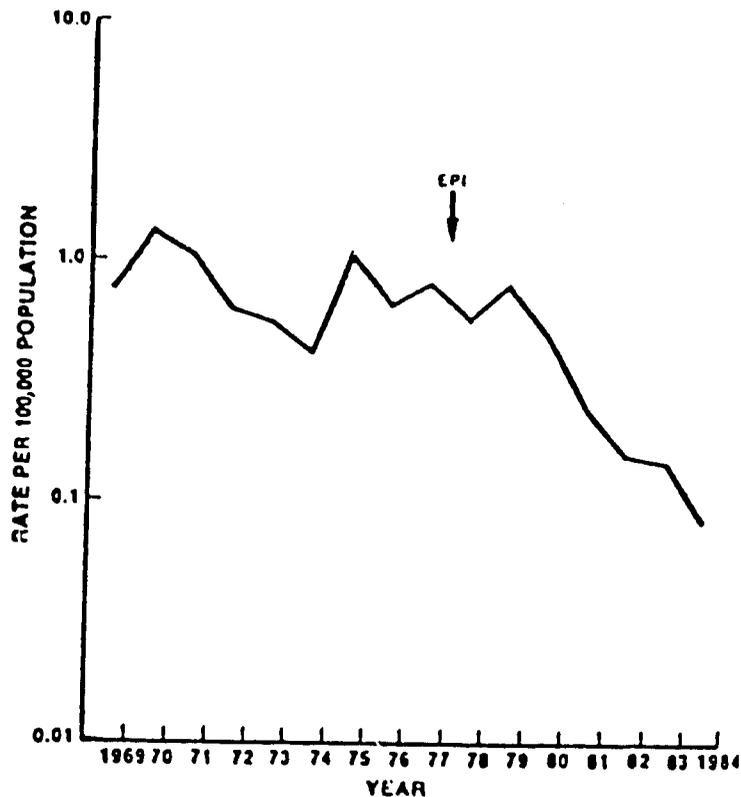


Figure 2. Annual number of reported cases of poliomyelitis, Region of the Americas, 1969-1984

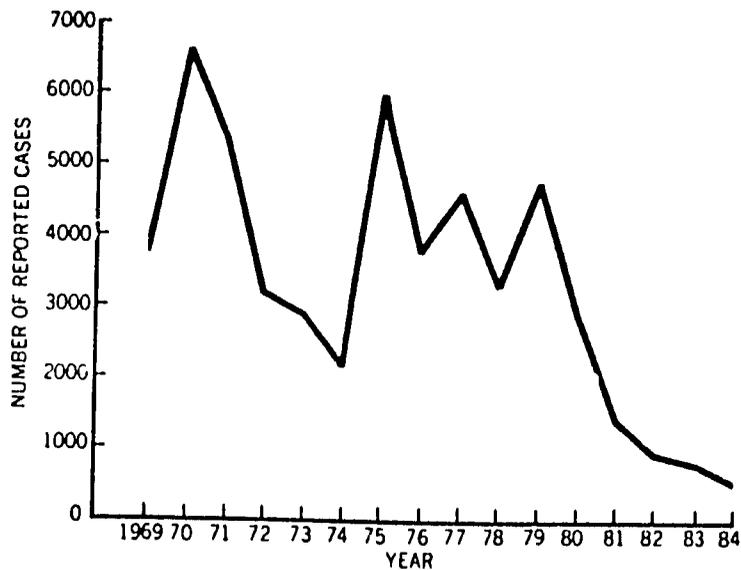


Table 1 gives a breakdown of the annual number of reported cases by country between 1975 and 1984. In 1978, 11 countries in the Region reported no cases of poliomyelitis. By 1984, 19 countries had reported no cases of poliomyelitis, almost double the number of countries reporting no cases only six years 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
NORTHERN AMERICA						
Bermuda	-	-	-	-	-	-
Canada	1	4	-	-	-	1
United States	13	20	7	9	12	7
CARIBBEAN						
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	-	-	-	-	-	-
CONTINENTAL MIDDLE AMERICA						
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	-	-	-	-	-	-
TROPICAL SOUTH AMERICA						
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	-	-
TEMPERATE SOUTH AMERICA						
Argentina	2	22	5	10	26	-
Chile	-	-	-	-	-	-
Uruguay	6	-	-	-	-	-
Total	4,772	3,877	1,464	969	911	525
Number of countries reporting cases	19	18	16	17	15	11
- no cases						

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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.

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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.

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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, CI&A 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

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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.

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TIMETABLE (TENTATIVE)

ACTIVITY	1985							1986					
	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1. Identification of Technical Advisory Group	=====												
2. EPI Newsletter section on poliomyelitis	==	==	==	==	==	==	==	==	==	==	==	==	==
3. Country Classification Assessments			=====	=====	=====	=====	=====	=====	=====	=====			
4. Evaluation of Laboratories in Region	=====	=====	=====	=====	=====	=====	=====						
5. Identification of polio investigation teams		=====	=====	=====	=====	=====	=====						
6. Identification and placement of PAHO/EPI Regional Office personnel		=====	=====	=====	=====	=====	=====						
7. Identification and placement of PAHO/EPI Sub-regional advisors		=====	=====	=====	=====	=====	=====						
8. Development of country surveillance systems		=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
9. TAG meetings		==			==				==				==
10. TAG review of plan of action		==							==				
11. Interagency Coordinating Committee meetings		==		==					==				==
12. Training of country level investigation teams			==		==		==			==			
13. Coverage surveys	=====												
14. Letter of Agreement PAHO/International Agencies				==									
15. Identification of Funding sources	=====												
16. Distribution of Spanish translation of Polio Symposium				==									
17. Distribution of PAHO manual for poliomyelitis eradication				==									
18. Design of standardized case investigation form		=====											
19. Approval of Resolution by Directing Council				==									
20. Identification and placement of PAHO/EPI country personnel					=====	=====	=====	=====	=====	=====	=====	=====	=====

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(TENTATIVE)

ACTIVITY	1985						1986						
	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
21. Meetings - EPI Managers						==		==					
22. Laboratory manual						==							
23. Identification of research needs (TAG)								==					
24. Laboratory personnel workshop									==				
25. Criteria for certification of eradication										==			

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

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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.

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

- 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 polio-virus 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)

Projected Annual Financial Inputs, by Donor Agency, 1986-1990
(In Thousands of Dollars)

DONOR	1986	1987	1988	1989	1990	TOTAL	(%)
AID	3,922	4,837	4,588.2	3,848.2	3,404.6	20,600	(44)
PAHO	930	930	930	930	930	4,650	(10)
IDB	1,044	1,404	1,536	1,464	1,152	6,600	(12)
UNICEF	1,000	1,000	1,000	1,000	1,000	5,000	(11)
ROTARY	1,605	2,675	2,675	2,140	1,605	10,700	(23)
TOTAL	8,501	10,846	10,729.2	9,382.2	8,091.6	47,550	(100)

FORMAT FOR TIMETABLE FOR NATIONAL WORK PLANS

Country _____

Filled Out By: _____ Page _____

1. Targets:
 1.1 Coverage
 1.2 Disease Reduction

Problem	Quantifiable Objective	Activities	Quarters				Financing		Responsibility/ Coordination/ Support
			1	2	3	4	National Commitment	Donor Commitment	

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TIMETABLE (TENTATIVE)

ACTIVITY	1986				1987	1988	1989	1990
	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC				
1. EPI Newsletter section on poliomyelitis	-----	-----	-----	-----	-----	-----	-----	-----
2. Country Classification Assessments		-----	-----	-----	-----	-----	-----	-----
3. Evaluation of Laboratories in Region	-----							
4. Identification of polio investigation teams		-----	-----					
5. Identification and placement of PAHO/EPI Regional Office personnel		-----	-----	-----	-----	-----	-----	-----
6. Identification and placement of PAHO/EPI Sub-regional advisors		-----	-----	-----	-----	-----	-----	-----
7. Development of country surveillance systems		-----	-----	-----	-----	-----	-----	-----
8. TAG meetings	-----		-----		-----	-----	-----	-----
9. Interagency Coordinating Committee meetings	-----		-----		-----	-----	-----	-----
10. Training of country level investigation teams		-----	-----	-----	-----	-----	-----	-----
11. Coverage surveys	-----		-----	-----	-----	-----	-----	-----
12. Letter of Agreement PAHO/International Agencies		-----						
13. Identification of Funding sources	-----							
14. Distribution of PAHO manual for poliomyelitis eradication		-----						
15. Design standardized case investigation form	-----							
16. Identification and placement of PAHO/EPI country personnel		-----	-----	-----	-----	-----	-----	-----
17. Meetings - EPI managers	-----	-----	-----	-----	-----	-----	-----	-----
18. Criteria for certification of eradication					-----			
19. Commission on Certification initiates process							-----	
20. Plans of Action developed	-----	-----	-----	-----	-----	-----	-----	-----
21. Stockpile of TOPV vaccine			-----	-----	-----	-----	-----	-----
22. Identification and implementation of operational research	-----		-----	-----	-----	-----	-----	-----
23. Training of local personnel			-----	-----	-----	-----	-----	-----
24. Equipment procured and installed			-----	-----	-----	-----	-----	-----
25. Mass-media campaigns			-----	-----	-----	-----	-----	-----

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NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

Goal

To improve the health and productivity of the population of the Americas through the prevention of immunizable diseases.

- a. Measurable reductions in morbidity and mortality from immunizable diseases, especially poliomyelitis.
- b. Reduction in productivity losses due to poliomyelitis-caused disabilities.
- c. Reduction in rehabilitation costs for poliomyelitis victims.

Reports from Ministry of Health's EPI Office, PAHO and other international health organizations. Reports from other affected Ministries. Morbidity surveys—lameness surveys.

The improvement in health and productivity will not be offset by other factors such as declining economic conditions, social unrest, etc.

Purposes

To strengthen and accelerate the Expanded Program on Immunization in the Region, and its objective of improved child survival, including the interruption of indigenous transmission of wild poliovirus in the American Region by the year 1990.

- Coverage of 80% or more in all countries by 1990.
- a) The last case of indigenously transmitted wild poliovirus will occur by the end of 1990.
 - b) During 1990 three countries, at most, will be reporting residual indigenous transmission of wild poliovirus; more than half of the reported cases in 1990 will be vaccine-associated.
 - c) By 1994, at least 3 years will have elapsed without identification of indigenous cases of wild poliovirus, in the presence of adequate surveillance.
 - d) In the event of an importation, there will be no secondary cases identified within one month of the date of onset of the illness in the imported case.

Coverage Surveys Reports from Ministry of Health's EPI Office, PAHO and other international health organizations. Morbidity surveys laboratory analysis of specimens of all suspected cases. Between 1990 and 1994 extensive case search by an international investigation team will not identify any cases in the three years preceding the visit.

Current health infrastructure will be strengthened and maintained. Continuing priority given to immunizations and polio eradication by governments in the Region. Adequate

Project Outputs

1) Regional strategy and Plan of Action developed for the eradication of polio by 1990 from the Americas.	<ul style="list-style-type: none"> a) Plan of Action developed for regional, sub-regional and national activities. b) Priority countries identified on the basis of high risk of polio outbreaks. c) Key interventions identified to achieve eradication targets. 	Endorsement of the Plan of Action by the Directing Council of PAHO (representing countries in the Region), by a Technical Advisory Group and by the Interagency Coordinating Committee (representing donor agencies).	Political commitment and technical capability in the Region.
2) National Plan of Action developed with resources and constraints identified and targets determined.	<ul style="list-style-type: none"> a) Strategies defined in National Plans of Action and agreements signed with PAHO, USAID and other participating entities for identification of budgetary inputs. b) Annual work-plans developed for each country. c) Commitment obtained for participation of non-health sectors and private sector entities. 	Reports from PAHO, USAID and other collaborating agencies; program reviews, Annual National Program Managers Meetings, Program Reviews.	<ul style="list-style-type: none"> 1) Continued government commitment. 2) Participation of Ministries of Finance and field office staff of donor agencies. 3) Availability of in-country and consultant technical expertise.
3) Functioning, effective epidemiological surveillance and outbreak control mechanisms in place at regional and national levels.	<ul style="list-style-type: none"> a) Immediate and thorough investigations of all suspected cases of poliomyelitis. b) All potential sources of notification in the countries contacted and incorporated in the surveillance mechanism. c) Formal protocols established and enforced by all countries according to PAHO guidelines. d) PAHO provides assistance for outbreak investigation and control through mobilization of expert teams within 24 to 48 hours following a reported outbreak. e) PAHO receives weekly telex reports from each country on all probable and confirmed cases. 	<ul style="list-style-type: none"> 1) National and PAHO annual reports and progress reports. 2) On-going monitoring by short-term consultants. 3) Program reviews. 4) Mid-term and EOP AID evaluations. 	<ul style="list-style-type: none"> 1) Technical assistance provided to countries in the Region. 2) Countries agree to adopt Regional guidelines for surveillance and outbreak control. 3) Adequate national manpower and resources deployed to follow surveillance and control measures.

Project Outputs (cont.)

- f) In the event of an outbreak, all countries in the Region notified immediately by telex from PAHO/Washington and traveller's advisories issued.
- g) Case identification and reporting includes weekly calls to all acute care hospitals (public and private, general and specialized) and rehabilitation centers. Once suspected cases are identified, thorough community investigations for additional cases are conducted.
- h) Control measures will provide TOPV to all persons at risk in a wide geographic area; in Group I countries this will cover all children under 5 years of age.
- i) Specimens collected for isolation studies on all probable cases and genetic characterization of all poliovirus isolates performed to confirm poliomyelitis.

4) Strengthened National Immunization programs and improved polio control activities.

- a) National immunization days held at least twice a year in Group I (polio-infected) countries during the project.
- b) Coverage rates of at least 80% of the target population maintained in Group II (polio-free) countries.
- c) Effective cold chains established and maintained in all countries of the Region.
- d) At least one intensive health education

Same as above.

- 1) Uninterrupted supply of vaccines and cold chain supplies.
- 2) Community participation in immunization days and compliance with 3 dosage schedule of polio vaccination.
- 3) Locally available social marketing expertise.
- 4) Adequate maintenance and fuel for vehicles.

NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

Project Outputs (cont.)

6) All countries have access to laboratory facilities for identification of poliovirus type.	<ul style="list-style-type: none"> a) Laboratories available and capable of virus isolation and identification, and vaccine quality control. b) At least 6 laboratories identified and certified as reference laboratories in the Region for this purpose. c) All procedures. d) For Collection transport, specimens and diagnosis of dose according to PAHO approved manual. 	In addition to the above, a team of virologists will review and certify laboratory and serological capabilities in the Region and that all suspected cases are being laboratory diagnosed.	<ul style="list-style-type: none"> a) Timely procurement and delivery of equipment and supplies. b) Continuing commitment by reference laboratories to serve other countries.
7) Improved strategies and alternatives for immunization services and polio control activities tested in pilot areas.	<ul style="list-style-type: none"> a) The Technical Advisory Group assists in identification of priority areas for operational research. b) At least two projects per year underway on operational _____ aimed at increasing coverage, lowering costs and improving the effectiveness of the immunization programs. 	TAG reports and PAHO regional and country annual reports.	<ul style="list-style-type: none"> a) Continued governmental commitment. b) Availability of technical expertise to design, implement and analyze studies.

Project InputGovernments of Countries
in the Region

1) Adequate funds for EPI operations, including the and funds available. purchase of vaccines not provided by external agencies, with plans for continuing support after 1990.	a) Total of approximately \$75 million (equivalent) obtained from government and other in-country sources. Specific dollar values per country to be estimated during development of National Plans of Action.	<ul style="list-style-type: none"> a) Annual Ministry of Health budgets b) Staffing patterns. c) Site visits. d) Annual Work Plans. 	Adequate official and executive support for the EPI and polio eradication program.
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Project Inputs (cont.)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| 2) Adequate personnel staffing of Ministry of Health's EPI and laboratories. | b) Ministry of Finance's signed agreement with estimated counterpart funding requirements in National Plans of Action. |
| 3) Adequate facilities for the EPI and polio eradication activities such as offices, training facilities, warehouses, cold storage and laboratories. | c) Bilateral USAID project agreements and other donor agreements to cover in-country costs not included in the PAHO grant. |
| 4) Vehicles, fuel and maintenance for use in the EPI program. | |
| 5) Training, educational materials and mass media for the EPI and polio eradication program. | |

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Input (cont.)		<u>\$ in '000</u>	
<u>Inter-American Development Bank</u>			
1) Personnel	1)		
—Long-term advisors in 11 countries.		-1,650	
--205 person months of short-term consultants.		-1,750	
2) Training	2)	<u>2,100</u>	
Subtotal		5,500	
3) Overhead		<u>1,100</u>	
TOTAL		\$6,600	
1) Consultations occur as scheduled. Approval of PAHO grant proposal. 2) Long-term advisors in place. 3) Trained polio eradication workers. 4) PAHO and country reports. 5) Evaluation reports.			
<u>UNICEF</u>			
1) Promotion	1)	750	
2) Supervision and surveillance	2)	1,750	
3) Cold Chain	3)	<u>2,000</u>	
Subtotal		4,500	
4) Contingency		<u>500</u>	
TOTAL		\$5,000	
1) PAHO and country reports. Same as above. 2) Evaluation reports.			
<u>Rotary International</u>			
1) Vaccine	1)	\$10,700	
Same as above. Same as above.			

NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Inputs (cont.)		\$ in '000	
USAID Input			
1) <u>Personnel</u> Four international staff	1)	2,212	1) Personnel in position. Availability of funds.
2) <u>Promotion</u> Education and communications programs in 15 countries	2)	3,350	2) Mass media and education campaigns conducted.
3) <u>Supervision, Surveillance and Outbreak Control</u> Airfare, per diem, vehicles, fuel and maintenance.	3)	1,640	3) Research reports.
4) <u>Laboratories</u>	4)	1,666	4) Laboratories providing needed services.
5) <u>Evaluation</u>	5)	1,555	5) PAHO, Ministry of Health and USAID reports.
6) <u>Meetings</u>	6)	553	6) Evaluation reports.
7) <u>Information</u>	7)	167	7) Reports of meetings.
8) <u>Cold Chain</u>	8)	1,006	
9) <u>Research</u>	9)	2,171	
10) <u>International Certification Commission</u>	10)	370	
Subtotal		\$17,166	
11) Contingency		756	
12) Overhead		<u>2,678</u>	
TOTAL		<u>\$20,600</u>	

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BREAKDOWN OF PERSONNEL POST COSTS

1. Assumptions:

- Staff member is married and he/she has two dependent children.
- Post has class for 1986 class 8
Post has class for 1987 class 9
Post has class for 1988 class 10
Post has class for 1989 class 11
Post has class for 1990 class 12
- To be recruited from outside the U.S.A.

2. Cost Breakdown:

	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
- Base salary (salary scale)	39,300	40,100	40,900	41,700	42,800
- Post adjustment (class schedule)	16,400	19,000	22,100	25,300	28,900
- Dependents allowance	1,400	1,400	1,400	1,400	1,400
<u>Total entitlements</u>	<u>57,100</u>	<u>60,500</u>	<u>64,400</u>	<u>68,400</u>	<u>73,100</u>
- Pension fund (14.5% of pensionable scale)	10,200	10,500	10,800	11,100	11,400
- Health insurance (2 dependents or more: 3.9%)	2,200	2,300	2,450,	2,600	2,800
- Acc. insurance (.67% of total entitlements)	400	400	450	450	500
- Terminal payments (6% of base salary)	2,350	2,400	2,450	2,500	2,550
<u>Sub-total Organization Cost</u>	<u>15,150</u>	<u>15,600</u>	<u>16,150</u>	<u>16,650</u>	<u>17,250</u>
- Education grant	3,000	3,400	3,800	4,200	4,600
- Recruitment or reassignment	3,000				
- Installation allowance	7,500				
- Home leave		6,000		6,500	
- Personal effects	10,000				
<u>TOTAL ORGANIZATION COST</u>	<u>95,750</u>	<u>85,500</u>	<u>84,350</u>	<u>95,750</u>	<u>94,950</u>