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EXPANDED PROGRAM ON IMMUNIZATION IN THE AMERICAS

Progress Report by the Director

This Progress Report on the Expanded Program on Immunization in the Americas (EPI) is presented to the XXII Pan American Sanitary Conference after having been reviewed and discussed by the 97th Meeting of the Executive Committee (Document CE97/18, annexed).

The report notes that the countries in the Region of the Americas have made notable progress since the launching of the EPI in the Americas in 1977. Coverages for all of the EPI vaccines have more than doubled in this period, and about 60% of the children under one year of age are receiving the EPI vaccines. There has been a notable impact on disease reduction, particularly poliomyelitis, which has been targeted for eradication from this Hemisphere by 1990. Since this goal was announced by the Director of PAHO in May 1985, there has been a marked acceleration of the EPI programs in the various countries of the Region. Surveillance activities have intensified, there has been increased training of personnel, and a network of laboratories for confirmation of diagnosis has been organized. It is of special note that all countries in the Region have prepared Action Plans which outline strategies and activities to be implemented in the next two years, with projections up to 1990. These Action Plans include the estimation of the national and international resources needed.

It has been pleasing to note the level of coordination achieved between the agencies involved in this program, particularly those that constitute the Inter-Agency Coordinating Committee: United Nations Children's Fund (UNICEF), United States Agency for International Development (USAID), Inter-American Development Bank (IDB), Rotary International, and the Pan American Health Organization.

The financing for the implementation of the Plan of Action has almost been finalized; besides the resources already being channeled by UNICEF and Rotary International, the USAID and IDB have pledged \$20.6 million and \$5.5 million, respectively.

The Executive Committee discussed the report, and stressed that these early successes should not lead to complacency and that the acceleration of current programs should complement the efforts of the routine programs in order to assure an effective total EPI Program.

One indicator of success of the program is the decline in polio activity, but it is important to remember that measles is still rampant in the Region. The control of measles will be the indicator that the immunization programs are being sustained. Furthermore, the control of neonatal tetanus will be an indicator not only of the success of a permanent immunization program, but of the proper functioning of the entire maternal and child health services. The occurrence of a single case of this disease represents a series of failures in the organization of these services.

It was noted that reaching the overall goals of the EPI and polio eradication in the Americas would provide a valuable model for the other Regions.

Finally, the experience acquired and the resulting improvements in epidemiological surveillance, laboratory services and vaccination systems would be of major importance for the control of other diseases preventable by immunization, and for the general improvement of the health infrastructure.

Annex

*executive committee of
the directing council*



PAN AMERICAN
HEALTH
ORGANIZATION

*working party of
the regional committee*

WORLD
HEALTH
ORGANIZATION



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EXPANDED PROGRAM ON IMMUNIZATION IN THE AMERICAS

Progress Report by the Director

This progress report is presented to the 97th Meeting of the Executive Committee in response to Resolution XXII of the XXXI Meeting of the Directing Council (1985). The report contains an update of developments in the Expanded Program on Immunization since September 1985, in particular, the activities that have been implemented at country and regional levels following the decisions to accelerate the EPI and adopt the Plan of Action for the Eradication of Indigenous Transmission of Wild Poliovirus from the Americas by 1990.

The major activities being implemented at country and regional levels are related to the acceleration of immunization programs and the strengthening of surveillance for prompt detection of suspected cases of poliomyelitis, case investigation, and immediate institution of control measures. Proposals for grant funds in support of regional and country program activities were developed and are now in the final stage of review by AID and IDB. Rotary International and UNICEF are increasing support of country programs.

CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. PROGRESS UPDATE	1
2.1 Status of the EPI Diseases in the Region	1
2.2 Regional EPI Managers' Meetings	4
2.3 National Plans of Action	5
2.4 Program Acceleration	5
2.5 Review of National Laboratories	6
2.6 Technical Manual on Poliomyelitis Eradication	7
2.7 Surveillance	8
2.7.1 Surveillance Guidelines	8
2.7.2 Surveillance Courses	9
2.8 Technical Advisory Group Meeting	9
2.9 Evaluations	10
III. INTERAGENCY COORDINATION	11
Annex: Final Report of the Second Meeting of the EPI Technical Advisory Group (TAG) on Polio Eradication in the Americas	

EXPANDED PROGRAM ON IMMUNIZATION IN THE AMERICAS

I. INTRODUCTION

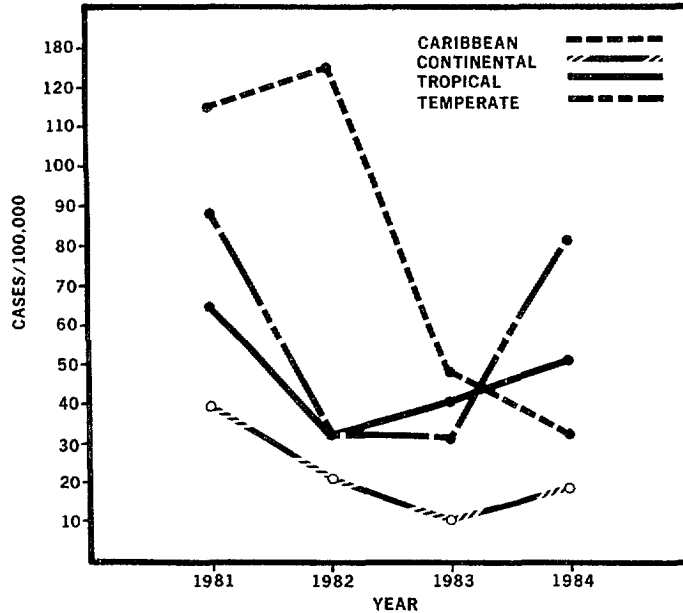
The Expanded Program on Immunization (EPI) has made major advances since it was launched in the Region of the Americas in 1977. Immunization coverage approximately doubled between 1977 and 1984, rising from 25-30% to over 60% in children under one year of age. As a consequence, incidence rates of the six EPI diseases (measles, poliomyelitis, tuberculosis, diphtheria, pertussis and tetanus) have been greatly reduced. These achievements have been particularly dramatic in the case of poliomyelitis and led to the decision to eradicate the indigenous transmission of wild poliovirus from the American hemisphere by 1990. Several key events took place in 1985 which laid the groundwork for this new initiative. In May, the Director of the Pan American Health Organization announced the polio eradication proposal; in July, a Proposal for Action was endorsed by the first meeting of the Technical Advisory Group (TAG) on polio eradication; in September, PAHO's Directing Council approved a resolution declaring the goals established in the Proposal for Action as one of the major objectives of the Organization; and in October, the first Interagency Coordinating Committee meeting was held to discuss how other agencies could support polio eradication activities.

II. PROGRESS UPDATE

2.1 Status of the EPI Diseases in the Region

Most countries of the Caribbean are achieving high vaccination coverages in children under one year of age and have reduced morbidity and mortality from the EPI diseases to very low levels. Measles continues to be the most frequently reported of the EPI-preventable diseases in almost all countries. The measles incidence rates for 1981-1984 by subregion are shown in Figure 1. Only in the Caribbean subregion has there been a marked decline in measles incidence over this period. Because of weak surveillance systems in many countries, the magnitude of deaths due to neonatal tetanus is not known. Provisional data for whooping cough and diphtheria in 1985 show that tropical South America reported well over half of the cases in the Region. However, the weak surveillance systems in some countries make it difficult to document precisely the magnitude of these two diseases.

Figure 1. Measles Incidence in the Americas, by Subregion, 1981-1984*



*Excludes U.S.A. and Canada

There has been a continuing downward trend in poliomyelitis activity since the EPI was established in 1977 (Figure 2). Reported cases in the Region, which numbered in the thousands during the sixties and seventies, are now counted in the hundreds. By the end of 1985, 471 cases of poliomyelitis had been reported from 13 countries in Latin America and the Caribbean, as compared to 542 cases reported from 14 countries in 1984. For the first 14 weeks of 1986, 199 cases have been reported from seven countries in the Region (Table 1), as compared to 119 cases from nine countries for the same period in 1985. This increase is most likely due to more active disease surveillance which has resulted in a greater proportion of cases being reported to health authorities.

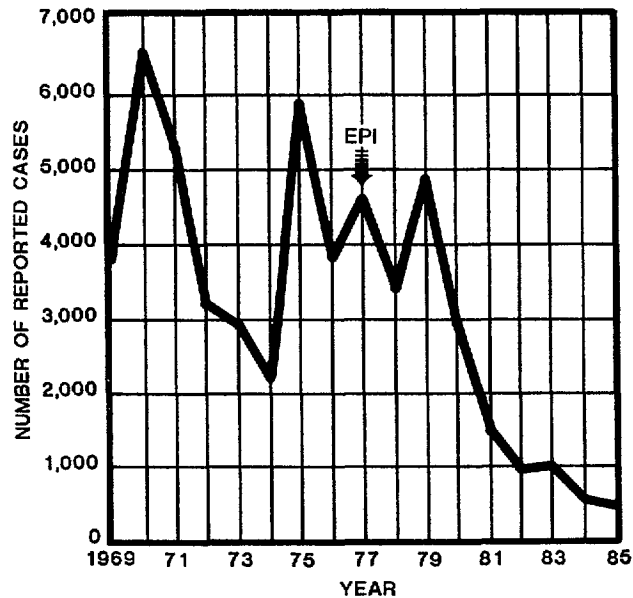
Table 1. Reported Cases of Poliomyelitis in the Region of the Americas, by Country, 1984, 1985 and First 14 Weeks of 1986*

Country	1984	1985	1986 (First 14 weeks)
Argentina	--	2	-
Brazil	82	138	108
Canada	1	--	--
Colombia	18	19	19
Dominican Rep.	--	2	--
Ecuador	--	1	--
El Salvador	19	6	--
Guatemala	6	26	19
Haiti	63	80	6
Honduras	76	4	1
Mexico	128	144	44
Paraguay	3	3	--
Peru	129	39	2
Suriname	1	--	--
United States	7	5	--
Venezuela	9	2	--
Total cases	542	471	199

-- No cases

* Countries not listed have not reported any cases of poliomyelitis since 1984.

Figure 2. Annual Number of Reported Cases of Poliomyelitis in the Region of the Americas, 1969-1985



To track poliomyelitis activity at the Regional level, PAHO instituted a weekly telex reporting system in January 1986. Each Member Country is requested to send a telex each Monday to PAHO indicating the number of poliomyelitis cases reported the previous epidemiological week, together with the number of cases reported for the same period during the previous year, and the cumulative number of cases reported for both the current year and the previous year. The system requires that this information be sent each week, even in the absence of cases. Countries of the English-speaking Caribbean, as well as Suriname, report to the Caribbean Epidemiology Center (CAREC) in Port of Spain, Trinidad, which in turn sends a weekly telex to PAHO. Every Wednesday, PAHO sends a telex to each country advising the cumulative number of cases reported, by country, through the most recent reporting period, and the cumulative number of cases reported for the same period the previous year.

Countries with suspected poliomyelitis cases are developing mechanisms to assure immediate case investigation and the implementation of control measures. The Regional level is also prepared to assist countries in all phases of polio investigation and control.

2.2 Regional EPI Managers' Meetings

In the effort to further strengthen the EPI and improve polio eradication activities in all countries and territories of the Region, EPI program managers from the English-speaking Caribbean and from Latin America met during November 1985 and May 1986, respectively. The objectives of these meetings were to review and assess progress to date in relation to coverage goals set at previous meetings, and to interchange ideas on how to correct problems impeding the national programs. In addition, each country prepared a national plan of action detailing specific activities necessary to reach the goal of hemispheric eradication of wild poliovirus and to strengthen the health infrastructure.

Each country was asked to review the progress of the EPI in relation to the reported morbidity and mortality of the EPI diseases, identify specific problems impeding the attainment of high vaccination coverages, and the technical and administrative problems related to the cold chain, information and surveillance systems. Particular emphasis was given to technical presentations and discussions concerning health education and social mobilization to encourage the private and public sectors to seek immunization services and assist health providers in organizing and delivering these services.

Participants discussed surveillance issues and problems regarding the eradication of wild poliovirus. The improvement of surveillance systems for detecting suspected cases of poliomyelitis, through improved case definition, diagnosis, and control measures, coupled with strong laboratory support, was determined to be an excellent basis to enhance the operational capabilities of future surveillance systems for the other EPI diseases.

2.3 National Plans of Action

In order to reach the goal of Regional eradication of wild poliovirus and assure that immunization programs are sustainable into the future, each country prepared a draft plan of action to be discussed at the EPI managers' meetings. The plans of action developed for the 1985-1986 meetings focussed on improvements in the health infrastructure, development of human resources, setting of targets for vaccination coverage and disease reduction, strategies for improving vaccination coverages, and detailed budgets including recurrent cost analysis.

In the Caribbean, five countries included rubella vaccination in their national immunization schedules, an indication that their immunization programs are sufficiently advanced to allow them to consider attacking other diseases of public health importance. Most of the countries listed specific activities in relation to the polio eradication goal, ranging from accelerated polio vaccination, to training in polio surveillance and the cold chain, to improvements in supervision and transportation systems.

The draft national plans of action are now being refined and discussed at the country level, as well as with other health authorities and with multilateral and bilateral agencies, in order to define the necessary inputs to assure that the objectives of the program are achieved.

2.4 Program Acceleration

In order to promote the achievement of the 1990 immunization goal and achieve the eradication of wild poliovirus as well as reduce the incidences of the other EPI diseases, various countries in the Region are using different strategies to increase immunization coverage.

In Mexico, two National Poliomyelitis Vaccination Days (NVD) were organized during January and March 1986 to rapidly increase vaccination coverage and concomitantly control disease transmission. The 2-day operation resulted in the vaccination of over 9 million children below 5 years of age--more than 80% of the children in this age group. Paraguay held its first NVDs during September and November 1985 and vaccinated 95% of the population below 4 years of age against polio.

Peru held three NVDs in 1985 and 1986 in which more than one quarter of all children below one year of age were vaccinated with DPT, measles, and polio vaccines. Ecuador also carried out three NVDs to increase vaccination coverage for these three vaccines. Results of Ecuador's NVDs are still forthcoming.

In 1986 Belize and Guatemala also launched NVDs in an effort to improve vaccination coverage. Belize is using three vaccination rounds, each lasting six weeks, to improve coverages, while Guatemala is using three rounds of four days. In both countries the NVDs include the vaccination of the target population with polio, DPT, and measles vaccines.

In all of the above countries, detailed plans were prepared for every level of the health system. Organizing committees were established to carry out and follow up preparations for vaccine delivery, procurement of cold chain and related supplies for administering vaccines, training of health workers and volunteers, and creation of temporary vaccination posts. Perhaps one of the key elements of all the accelerated efforts reviewed has been the mass publicity and mobilization of the populations of these countries. Without this kind of effort, the coverage achieved using accelerated strategies may well have been considerably lower.

The governments, together with PAHO, USAID, UNICEF, and Rotary International, were able to obtain community volunteers and free press coverage from the private sector in order to mobilize popular support. Of particular note is the valuable assistance that the local Rotarians were able to contribute in terms of cash contributions and promotional activities for the NVDs in a number of countries.

In Brazil, 164 health workers from many different states, working in the fields of epidemiology, disease control, health education and social communication, and laboratory analysis, met for three days to discuss the technical and administrative mechanisms necessary to strengthen the EPI and polio eradication activities. The meeting was a clear demonstration of this country's commitment to protecting its children and achieving the EPI goals, especially the rapid interruption of wild poliovirus transmission.

2.5 Review of National Laboratories

A major recommendation of the first Technical Advisory Group Meeting was to review the national laboratories in the Region in order to assess their strengths and weaknesses, particularly with regard to support for the polio eradication effort. These evaluations have been carried out in the following countries: Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Honduras, Jamaica, Mexico, Peru, Trinidad (CAREC), and Venezuela.

In accordance with the Polio Plan of Action, all countries should have access to laboratory facilities for poliomyelitis studies. The laboratory review showed that poliovirus isolation and identification methods are fairly well standardized, but methods for poliovirus serology and vaccine titration are less standardized. Tissue culture problems are widespread, as are problems with collection and shipment of specimens. The lack of supplies and equipment (for example, standard reagents and thermometers) is a significant problem at most laboratories. It was also stressed that training of personnel will be a vital part of the effort to improve laboratory support. It is particularly important for the polio effort that the interval between collection of specimens and receipt of laboratory results be reduced to a minimum. In spite of these constraints, it was found that with additional assistance, several laboratories seem capable of providing the needed support both to their own countries and to other countries in the Region.

2.6 Technical Manual on Poliomyelitis Eradication

Following the Directing Council's approval of the Polio Plan of Action in September 1986, work began on a draft Technical Manual for the Eradication of Indigenous Transmission of Wild Poliovirus in the Americas. The manual is divided into five chapters which cover in detail most of the issues addressed in the Plan of Action; it is designed to aid national authorities and program managers in the preparation of national manuals or guidelines for polio eradication.

The manual reviews the polio situation in the Americas for the period 1969-1985 and describes the epidemiology of the disease. It discusses epidemiological surveillance and the organization of reporting systems, as well as epidemiological investigations, the evaluation of vaccination coverage and analysis of data. The chapter on laboratory diagnosis covers subjects ranging from the collection, conservation and shipping of specimens to the analysis and interpretation of results. There is also a chapter on vaccines and vaccination strategies, which addresses routine program organization as well as special campaigns and national immunization days and outbreak control. The last chapter deals with the clinical aspects of the disease, its differential diagnosis and a guide to the physical examination of patients and verification of sequelae.

The first draft of the manual is currently undergoing a second review, following its circulation and receipt of comments from members of the EPI Technical Advisory Group and other experts on this subject. A final version of this important program tool is expected to be available for wide distribution during the next meeting of the PAHO Directing Council in September 1986.

2.7 Surveillance

2.7.1 Surveillance Guidelines

In addition to the draft manual referred to in section 2.6 above, a series of guidelines have been developed to maximize the sensitivity and specificity of poliomyelitis surveillance in the Americas. These guidelines are necessary in order to implement control measures in a timely and efficient manner and to monitor more rigorously progress towards the eradication of wild poliovirus transmission by 1990. These guidelines, prepared with the collaboration of the Centers for Disease Control, Atlanta, Georgia, are presently being implemented in a few countries of the Region, primarily in Brazil and Mexico. The objectives of the guidelines are as follows:

- Identification of geographic areas at highest risk of wild poliovirus transmission, based on available surveillance data, population density and socioeconomic status, and oral polio vaccine (OPV) coverage among children less than 5 years of age;
- Rapid identification and reporting of all suspected cases of poliomyelitis, both in high- and low-risk areas;
- Rapid and uniform investigation of all suspected cases to make a preliminary classification of "non-case" or "probable case";
- Collection of detailed clinical and demographic information for all probable cases, as well as specimens for laboratory diagnosis;
- Prompt investigations in the neighborhood and community of each probable case to ascertain additional cases, vaccinate susceptibles in the community surrounding the probable case, and determine the extent of vaccination activities in contiguous communities;
- Timely determination of final classification for all cases;
- Maintenance of detailed, uniform, accurate, and up-to-date record keeping systems to monitor progress towards the 1990 objectives.

The main components of the system are the identification and training of dedicated personnel at state/provincial level to be responsible for surveillance activities; the establishment of adequate OPV coverage levels in populations at risk for each community; uniform case and outbreak investigation; appropriate record-keeping systems and containment activities.

2.7.2 Surveillance Courses

Schools of Public Health continue to be strong participants in EPI training activities, which are now aimed primarily at surveillance. Materials for an EPI surveillance course were originally produced by the School of Public Health of Rio de Janeiro and were later translated and adapted by the School of Public Health of Buenos Aires. The course addresses issues relating to the organization of surveillance systems for health workers at all different levels of the health system. The first Regional course was held in Buenos Aires with the participation of faculty from both schools as well as the School of Public Health of Mexico. These three schools subsequently organized and held a similar course in Managua, Nicaragua, for participants from Central America and Mexico. Drawing on the experience of these two courses, the three Schools of Public Health have prepared a joint final version of the course materials and will continue collaborating with PAHO and its Member Countries in this important program component.

The School of Public Health of Mexico signed an agreement with PAHO similar to the ones made with the Schools of Public Health of Brazil and Buenos Aires. Besides producing training materials and holding surveillance courses, the School will also carry out operational research, particularly on the identification of areas at risk for neonatal tetanus in Mexico and the epidemiological patterns of measles in Mexico City. Both activities will aid the Ministry of Health of Mexico to define its strategies for the control of these two priority diseases.

2.8 Technical Advisory Group (TAG) Meeting

The second meeting of the Technical Advisory Group on EPI and polio eradication in the Americas was held in Mexico City 15-17 January 1986. One of the recommendations of the XXXI Meeting of the PAHO Directing Council, in accordance with the Polio Plan of Action, was that surveillance issues should be the first priority to be addressed by the programs. Consequently, since September 1985 a special effort has been made to obtain further information regarding operational issues in surveillance. Special investigations carried out by the Ministry of Health in Brazil were the basis for the discussions held during this meeting.

The major recommendations of the TAG members included revised definitions for suspected, probable and confirmed cases of poliomyelitis; emphasis on sustaining at least 80% vaccination coverage in children under one, not just on the national level, but in each geopolitical unit; and the need for laboratory investigation of all cases diagnosed as Guillain-Barré Syndrome (GBS). The group also made recommendations regarding containment activities, improved case finding and case investigation, laboratory support and immediate needs for further investigation. The complete TAG report is contained in the Annex.

The next TAG meeting was tentatively scheduled for the first week of September 1986, in Brasilia. Major suggestions for the agenda included a review of the laboratory and surveillance and control manuals currently under preparation, discussion of major outstanding research issues, and a review of further experience with intensified surveillance activities (e.g., from Brazil, Mexico, and perhaps other countries). In addition, it was felt that discussions should begin regarding the process for certification of eradication and that the hemispheric experience with vaccine-associated polio should be reviewed.

2.9 Evaluations

The periodic evaluation of national Expanded Programs on Immunization continues to be an important component of the Regional program. Eight countries carried out evaluations of their national programs in 1985, three of them for the first time (Mexico, Paraguay and Suriname). Joint Expanded Program on Immunization/Control of Diarrheal Diseases evaluations were carried out in Ecuador in September 1985, and in Suriname in November-December 1985.

In general, these evaluations show that countries continue to make notable improvements in vaccination coverage, resulting in decreased morbidity from the EPI diseases. Common problem areas remain, however, which must be addressed promptly if the EPI is to reach its goals by 1990. Chief among these are the need for aggressive surveillance systems, improved laboratory support, the development of reliable information systems, the lack of appropriate cold chain equipment, and the need for more and better trained cold chain technicians.

Since the multidisciplinary EPI evaluation methodology was introduced in 1980, eighteen countries in the Americas have conducted comprehensive audits of their national immunization programs. Nine of these countries have also held follow-up evaluations to assess their success in implementing recommendations from the previous evaluation, and to devise new workplans for the next two years.

A joint meeting on methodologies for the evaluation of vaccination programs was held in Washington, D.C., from 22 to 24 January 1986. It was attended by representatives from UNICEF, PAHO/WHO, and the World Bank. It was agreed that the process should include an evaluation of the general EPI program, including activities for social mobilization, the evaluation of coverage, and cost-efficiency studies. For the general evaluation of the program, the methodology should be the one used by PAHO/WHO and should incorporate aspects relative to social mobilization. The analysis of costs should include estimates on total cost, incremental cost in local currency and in dollars, and social costs. The methodology for cost studies will be based on WHO document EPI-GENE-79.5, WHO.

In order to standardize and test the proposed methodology of evaluation, the group recommended it be utilized in some of the countries that have recently carried out activities to accelerate the EPI (Peru, Ecuador, and Belize) or that are in the process of doing so (Guatemala).

III. INTERAGENCY COORDINATION

3.1 Following the first two meetings of the Interagency Coordinating Committee, formed by representatives of the Inter-American Development Bank (IDB), the U.S. Agency for International Development (USAID), Rotary International, UNICEF, and PAHO, proposals were developed by PAHO and forwarded to IDB and AID. These proposals request grants totaling US\$26.1 million (\$20.6 million from AID and \$5.5 million from IDB). Table 2 shows a tentative budget by donor agency and program component.

The grant requested from AID will finance items such as personnel, meetings, laboratory support, information dissemination and evaluation, promotion, supervision, surveillance and outbreak control, cold chain, operational research and the activities of an international certification commission. The grant being requested from the IDB would cover expenses related to training at all levels of the health system, contracts with local personnel to strengthen the EPI program in those countries at highest risk, and the short-term consultants needed to support program activities in the various countries of the Region. The proposals are in the final stages of review by both agencies, and decisions are expected on both proposals by the time the PAHO Executive Committee meets in June 1986.

Even though there will be an overall shortfall of funds in the regular PAHO/WHO budget for the biennium, the Director approved additional funds which allowed the program to proceed with the most urgent activities and so avoid losing momentum.

3.2 UNICEF has supported acceleration activities in several countries and has tentatively programmed some \$10 million for the next five years in support of the EPI goals and the polio eradication effort. A UNICEF/PAHO meeting was held in February 1986 to discuss the advances made and establish joint activities for the year. It was agreed that both agencies, together with AID, Rotary International and other agencies interested in supporting the program, would participate in the preparation of the national work plans discussed at the May 1986 meeting of Latin American EPI managers (see Section 2.1).

Table 2. Tentative Budget by Donor Agency and Component, 1986-1990
(in thousands of dollars)

Item	USAID	PAHO	IDB	UNICEF	Rotary	Total
TOTAL	20,600	4,650	5,500	5,000	10,700	46,450
Personnel						
Inter-country	1,832	1,900				3,732
In-country		1,650			1,650	
Consultants		1,750			1,750	
Training		2,100			2,100	
Meetings	553	250				803
Laboratories	1,666	200				1,866
Information	167	350				517
Evaluation	1,610	600				2,210
Promotion	3,350			750		4,100
Supervision and						
Surveillance	4,252			1,750		6,002
Certification	370					370
Cold Chain	1,006	500		2,000		3,506
Research	2,171	200				2,371
Vaccine					10,700	10,700
Contingency	982			500		1,482
Overhead	2,641	650*		*	**	3,291
Total	20,600	4,650	5,500	5,000	10,700	46,450

* 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.

A special discussion was held regarding the joint recommendation to be made on the strategy to be followed in the case of countries that report cases of poliomyelitis (those classified in Group I of the Plan of Action for the eradication of Polio from the Americas by 1990; see Document PAHO/WHO-CD31/7, Annex II, July 1985). These countries can be grouped as follows:

- a) Countries that have not yet initiated actions to accelerate the EPI, and that should receive support to initiate them. At the time of the meeting these were Guatemala, Honduras and Haiti.

- b) Countries that have initiated National Vaccination Days and should be encouraged to maintain them: El Salvador, Colombia, Paraguay, Peru, Mexico and Ecuador.
- c) Countries in which current strategy does not require substantial modification: Argentina, Jamaica and Venezuela.

PAHO and UNICEF pledge to continue their close coordination in support of country activities and to make further efforts to coordinate with other agencies involved in immunization programs at the country level.

3.3 Rotary International has pledged to promote and assist polio immunization of all children worldwide. Through its PolioPlus Program, Rotary is providing countries with all the polio vaccine necessary for up to five consecutive years. In the Americas, Rotary is working in close collaboration with PAHO and has fully endorsed the goal of eradicating indigenous transmission of the wild poliovirus in the hemisphere. As of April 1986, Rotary has made PolioPlus grants totalling over \$3.5 million in support of 12 countries in the Americas: Argentina, Belize, Bolivia, Costa Rica, El Salvador, Guatemala, Haiti, Honduras, Mexico, Panama, Paraguay, and Saint Lucia. Rotary has also played a very successful role in social mobilization, encouraging local Rotarians and other community members to assist governments in the organization and delivery of vaccines during National Vaccination Days.

Rotary's role as a catalyst in bringing together public and private resources in support of the polio eradication initiative should be a stimulus to other agencies, particularly the nongovernmental organizations (NGOs), to support national efforts towards achieving this goal.

3.4 Interagency coordination will play an increasingly important role in developing sustainable immunization programs during the rest of this decade. The development of a strong primary health care system requires that first priority be given to building institutional capacity, a task which can be greatly facilitated by combining the resources and expertise of both national and donor sources.

External support will play a crucial role in the acceleration of immunization programs necessary to achieve the polio eradication goal. The process will require improvements in health care systems which will benefit not only immunization programs but also other primary health care interventions. Program acceleration will entail an improved organizational and management structure, extending from national to health establishment level, and including village-level participation. It will require an improved distribution system for a few manageable biologic agents and supplies, as well as a well organized information system to measure program progress and success in disease control. Personnel will be trained at all levels, not only in the technical

aspects related to the epidemiology and control of diseases, but also in problem-solving and other managerial skills relevant to the delivery of other preventive and curative measures at the primary health care level. In addition, the effort to eradicate a disease mobilizes in-country resources not generally used by the health sector.

Pursuit of the EPI goals, and the polio eradication goal in particular, will improve the existing infrastructure and thus help strengthen immunization programs throughout the Region. The active participation of external agencies is crucial to this process, and will result in lasting benefits to national primary health care systems.

Annex



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

EPI/86/001/REV. 1

SECOND MEETING OF THE EPI TECHNICAL ADVISORY
GROUP (TAG) ON POLIO ERADICATION IN THE AMERICAS
MEXICO CITY, 15-17 JANUARY 1986

MEXICO CITY, MEXICO

FINAL REPORT

SECOND MEETING OF THE EPI TECHNICAL ADVISORY
GROUP (TAG) ON POLIO ERADICATION IN THE AMERICAS
MEXICO CITY, 15-17 JANUARY 1986

Shortly after the May 1985 announcement of the hemispheric goal to eradicate transmission of wild poliovirus in the Americas by 1990, the Director of the Pan American Health Organization (PAHO) appointed a Technical Advisory Group (TAG) to provide continuing advice and support in developing and implementing strategies to achieve this goal within the context of the Expanded Program on Immunization (EPI). The first meeting of the TAG, in July 1985, included review, revision, and approval of a Plan of Action. This Plan was subsequently presented to the Directing Council of PAHO and endorsed by Resolution XXII of the XXXI Meeting in September 1985.

A major recommendation of the TAG meeting was that laboratory and surveillance issues should be addressed in detail at the next meeting and that as much information as possible should be gathered to assist in the discussions.

Since the first TAG meeting, an InterAgency Coordinating Committee, with representatives from PAHO, UNICEF, USAID, IDB, and Rotary International, has met twice. Proposals for funding have been presented to the InterAmerican Development Bank and the U.S. Agency for International Development; Rotary International has assured a supply of polio vaccine for 5 years to all countries submitting approved plans; UNICEF has intensified support for immunization activities in a number of countries; and a number of countries have undertaken intensified programs through the establishment of National Immunization Days. In all, 11 of the 20 Latin American countries are now using National Immunization Days.

In the interim between TAG meetings, a concerted effort was made to obtain further information regarding surveillance and laboratory issues. It was decided that a visit by a PAHO consultant to a country presently reporting polio would provide useful information regarding operational issues of surveillance. Brazil was chosen as it is a large country with diverse geographic, climatic and cultural conditions and one which has persistent polio activity in spite of a strong commitment to control polio and 5 years' experience with two national immunization campaigns annually. With regard to laboratory information, laboratories in 7 countries have been visited by consultants to assess their capabilities to provide the support needed for the eradication effort. Reports on these investigations provided the basis for the main discussions of the current TAG meeting.

The second TAG meeting was inaugurated by the Secretary of Health of Mexico, Dr. Guillermo Soberón Acevedo and the Country Representative of PAHO, Dr. Pablo Isaza. The meeting was chaired by Dr. D. A. Henderson, and Drs. José Manuel Borgoño and Alan Hinman served as rapporteurs. A complete list of participants as well as the agenda of the meeting is attached. What follows is a brief summary of the main agenda items and the conclusions and recommendations of the TAG.

In addition to detailed presentations on surveillance and laboratory issues, representatives from Mexico presented an overview of their surveillance system, laboratory support, the organization of operations in their forthcoming National Immunization Days for polio, and a summary of the national program for DTP and measles immunization. A summary was presented of pertinent issues from the Brazilian experience with National Immunization Days. There was also a summary of major items covered at the recent meeting of the EPI Global Advisory Group. Finally, a presentation was made concerning studies of the Ezeject disposable syringe.

In introduction, it was noted that in 1985 a provisional total of 464 cases of paralytic poliomyelitis have been reported from 14 countries in the Region, compared to 542 cases reported from 13 countries in 1984.

SURVEILLANCE

A summary was presented of the intensive investigation carried out in Brazil over a 4-month period. This review included a detailed analysis of all suspected polio cases reported to the national level from 1982 to 1985 as well as a judgment as to whether the cases had been appropriately categorized when reported and how they might now be classified under a new case classification system. In addition, reviews were carried out in 13 states and the Federal District. These visits, which included personnel from national levels as well as participants from other states, involved review of the general surveillance procedures and a case-by-case review of all suspected cases reported during 1983-1985. In addition, visits were made to hospitals, rehabilitation centers, and other health care providers as a form of active case finding. Mini-surveys were also carried out in several communities to assess coverage and the possibility of additional suspected cases.

There was extensive discussion covering virtually all aspects of the investigation in Brazil, which clearly had provided much important information about the practical aspect of polio surveillance. Major discussion centered around the following topics:

- case definition
- Guillain-Barré Syndrome (GBS)
- containment procedures
- case diagnosis and investigation
- laboratory support
- training needs
- needs for further investigations

The main conclusions and recommendations resulting from these discussions are summarized in a later section of this report.

LABORATORIES

Seven laboratories have been visited thus far (in Brazil, Argentina, Chile, Mexico, Venezuela, Colombia, and Ecuador), and an additional 7-8 will be visited during January and February. In the laboratories so far visited, poliovirus isolation and identification methods are fairly well standardized, but methods for poliovirus serology and vaccine titration are less standardized. Tissue culture problems are widespread as are problems with collection and shipment of specimens. At most laboratories, the lack of supplies and equipment are also significant problems. Nonetheless, with some additional assistance, several laboratories seem capable of providing the needed support not only to their own countries but also to other countries in the Region.

Efforts are presently underway to develop a comprehensive laboratory manual--it is presently approximately one-half complete and a complete draft should be available within the next 2 months. Two courses will be held. The first course, in June 1986, in Rio de Janeiro, will cover virus isolation and serological procedures. The second course will be held in Atlanta in September 1986, and will focus on techniques in molecular virology. Each course will last 2 weeks.

MEXICO

Separate presentations were made regarding the planned improvements in the surveillance system in Mexico, the organization and implementation of the National Immunization Days, laboratory support, and vaccine production and control. In addition, a summary was presented of the results of immunization programs to date in Mexico. The provisional total of cases reported in 1985 is 139. In recent years most cases have been due to type I poliovirus but only about 15% of cases have been confirmed in the laboratory. Approximately 40% of cases occur in persons with a history of having received two or more doses of OPV, but vaccine has primarily been delivered on a door-to-door basis and there has been concern that there may have been breaks in the cold chain. Major steps are underway to improve the reporting system and to have each suspected case investigated by an epidemiologist from the central level. Mass immunization campaigns against polio have been held since 1981, using monovalent type I vaccine in one round and trivalent OPV in the other years.

The National Polio Immunization Days, which will include vaccination days in January and March (using trivalent OPV), will be based on a different structure. Approximately 80,000 vaccination posts have been established throughout the country and these will be staffed by more than 600,000 volunteers in addition to permanent staff. Major publicity efforts have been undertaken and it is anticipated that this approach will have more satisfactory results than the previous one.

Brazil

In the late 1970s it became apparent that the routine health services in Brazil would not be adequate to meet the goals of the EPI. Consequently it was decided to embark on an accelerated strategy through the use of National Immunization Days. At the outset these days involved only the use of OPV for several reasons, including the technical simplicity of its use, the ease of identifying the target population, the immediate impact that could be seen on disease incidence, the variety of contraindications, and the fact that polio was widely feared by the population. After four years of highly successful efforts against polio, DTP and measles vaccines were added to the National Immunization Days in most parts of the country in 1984.

Use of multiple antigens raised several new issues, including increased training needs, difficulties in identifying the target population for a given immunization site, the increased importance of immunization records, increased logistical problems as a result of the need for needles and syringes, more need to consider side effects and contraindications, and the fact that some persons fear needles more than the diseases concerned. Nonetheless, inclusion of the other vaccines has resulted in overall improvement in immunization levels and the effort has clearly been worthwhile. Although many of the new issues raised by use of multiple antigens have been resolved, further operational research is needed to solve all the problems.

GLOBAL ADVISORY GROUP MEETING

The main topics addressed at the November 1985 meeting of the EPI Global Advisory Group in Copenhagen were:

- the progress to date and remaining problems in the European Region, particularly as regards the ambitious targets developed to eliminate indigenous polio, measles, diphtheria, congenital rubella, and neonatal tetanus.
- the necessity of intensifying activities through the use of National Immunization Days or similar strategies in order to achieve the 1990 goals of the EPI.
- a frank discussion of the roles and problems of different groups participating in the EPI, including governmental and non-governmental organizations.
- a further statement on the need to develop surveillance systems and recognition of the need to establish morbidity reduction targets for immunization programs (as is being done in the American and European regions).

CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations which follow are meant to be used as further elaboration on the Plan of Action and to serve as additional guides in the preparation of operational manuals.

1. The TAG notes with pleasure that a considerable number of activities have been carried out since its first meeting. The support which has already been given by PAHO and by individual countries and some agencies is most encouraging. The program is at a crucial stage and promises rapid development, but early receipt of support from all collaborating agencies is vital to sustain and augment the momentum.

2. The coverage level originally described as the level which would indicate that a polio-free country was at low risk of reestablishment of transmission (80% coverage in children less than 1 year old) should be clarified to indicate that this minimum coverage should be achieved in each geopolitical unit (e.g., county, municipality).

3. Case definitions should be clarified as follows:

- a SUSPECTED case should be defined as any acute onset of paralysis in a person less than 15 years of age as well as any paralytic illness in a person of any age in which polio is suspected as a likely cause.
- a PROBABLE case is any acute onset of flaccid paralysis without another proven cause. The presence or absence of sensory loss should not be considered since it is so difficult to ascertain in infants and young children.
- a CONFIRMED case is a probable case with:
 - a) laboratory confirmation OR
 - b) epidemiological linkage to another probable or confirmed case OR
 - c) residual paralysis 60 days after onset OR
 - d) death following clinically compatible illness.

4. Guillain-Barré Syndrome (GBS) poses a particular problem in that the diagnosis seems to be made incorrectly in many settings. ANY CASE OF PARALYSIS IN AN INDIVIDUAL LESS THAN 15 YEARS OF AGE SHOULD BE CONSIDERED POLIO UNTIL PROVEN OTHERWISE. All cases of GBS (of whatever age) should have appropriate laboratory investigation to establish that the illness is not polio.

5. Containment. The geographical extent of containment activities should be determined by the local epidemiological situation but in general should extend widely around the case. The age group of

those vaccinated in containment activities should also be determined based on the epidemiological situation. This may sometimes result in vaccination of individuals older than 5 years in containment efforts.

6. Improved case finding. Improvements in surveillance are urgently required in all countries. The important role of the laboratory as a source of information must be stressed. Laboratories should report immediately to the EPI officer any specimens submitted for viral studies in which polio or paralysis is indicated on the laboratory request. The role of schools as well as hospitals and health care providers in providing information about possible polio cases should be emphasized.

7. Case investigation. From this time on, each country in the region should investigate promptly every suspected case of polio reported and obtain appropriate laboratory specimens. Each country should train a limited number of individuals (to be based at state, regional or national levels depending on size of population) to investigate all reported suspected cases and to evaluate and categorize all probable or confirmed cases. Additionally, it is important to establish a system at the national level for keeping track of suspected cases and their ultimate classification and disposition.

8. Laboratory support. Establishing and maintaining competent and reliable laboratory support is both difficult and costly. Moreover, for a laboratory to maintain expertise, a monthly average of approximately 50 specimens for enterovirus isolation is needed. Fortunately, only a limited number of laboratories (probably 5-8) is needed to support the polio eradication effort. The laboratories which will serve this function should be identified and operational before the end of 1986. Proficiency testing and other means of quality control will be essential on an ongoing basis. Centralized provision of standardized reagents (and possibly supplies and equipment) is necessary to assure comparability and quality of results. Particular attention should be paid to the proper obtaining, handling, and submission of specimens.

9. Training needs. To assist in training necessary staff at national, state, and local levels it is imperative that manuals be developed as quickly as possible. At least two manuals are needed: a comprehensive laboratory manual and a manual on surveillance and control. It is expected that both manuals will be available before the end of 1986.

10. Immediate needs for further investigation:

- a) development and evaluation of the most appropriate means of surveillance.
- b) development of techniques to determine the appropriate extent of containment activities, both in terms of the geographical extent of the activities and in terms of the age groups of the target population to be immunized.

- c) programmatic importance of polio in persons more than 15 years old.
- d) development of methods to ascertain the absence of wild poliovirus in countries without reported cases.
- e) role of non-polio enteroviruses in causing paralytic illness.
- f) magnitude of potential misdiagnosis of polio cases as cases of GBS.
- g) development of methods to detect cases which ordinarily would not come to the attention of the health sector.
- h) frequency of occurrence of vaccine-associated cases of paralysis.
- i) development of techniques to achieve satisfactory coverage in all segments of the target population during intensified activities.

11. Mexico. The TAG noted with satisfaction the increased commitment demonstrated by the National Polio Immunization Days inaugurated in 1986 (which TAG members had the opportunity to observe) and the efforts to improve surveillance. These are clearly major undertakings which should have a substantial impact on the occurrence of disease in Mexico. It is quite possible that the improved surveillance may detect a large enough number of previously unreported cases that there may seem to be a paradoxical increase in cases, even in the face of improved immunization levels. The TAG looks forward with anticipation to future reports of activities in Mexico and to the inclusion of other antigens and individual immunization records in the program.

12. Experience in Brazil and other countries has clearly demonstrated that National Immunization Days are feasible and effective ways of improving vaccine coverage and having a dramatic impact on disease incidence, particularly polio. With appropriate planning and continuing support from the federal level, these efforts can be sustained over several years. National Immunization Days are particularly appropriate for achieving rapid results with polio and are clearly a major tool to be used in eradicating the disease from the hemisphere. In addition, National Immunization Days can have an important impact beyond immunization in mobilizing social resources, generating increased political support, and focusing public attention on preventive health activities. Although the addition of measles and DTP vaccines to the National Immunization Days raises additional operational problems, most of these can be resolved and considerable additional benefits achieved. Under all circumstances, development of reliable surveillance mechanisms is essential to demonstrate the impact of immunization programs.

NEXT MEETING

The next meeting of TAG was tentatively scheduled for the first week of September 1986, in Brasilia. Major suggestions for the agenda included a review of the laboratory and surveillance and control manuals currently under preparation, discussion of major outstanding research issues, and a review of further experience with intensified surveillance activities (e.g., from Brazil, Mexico, and perhaps other countries). In addition, it was felt that discussions should begin regarding the process for certification of eradication and that the hemispheric experience with vaccine-associated polio should be reviewed.



PAN AMERICAN HEALTH ORGANIZATION

WORLD HEALTH ORGANIZATION



XXII PAN AMERICAN SANITARY CONFERENCE

XXXVIII REGIONAL COMMITTEE MEETING

WASHINGTON, D.C.

SEPTEMBER 1986

Agenda Item 5.8

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EXPANDED PROGRAM ON IMMUNIZATION IN THE AMERICAS

THIRD MEETING OF THE EPI TECHNICAL ADVISORY
GROUP (TAG) ON POLIO ERADICATION IN THE AMERICAS

Brasilia, 10-12 September 1986

FINAL REPORT



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

EPI/TAG/86/011

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FINAL REPORT

In the eight months since the second meeting of the EPI Technical Advisory Group (TAG) in Mexico, significant progress has been made and several important developments have occurred. Two national vaccination days have been held in Mexico, the two regularly scheduled vaccination days were carried out in Brazil, and several other countries have intensified their activities. PAHO has initiated a weekly bulletin to chart progress. The EPI program managers from the Latin American countries have met and developed plans for the coming biennium. In the fiscal arena, the U.S. Agency for International Development has committed \$20.6 million to the hemispheric polio eradication effort, the Interamerican Development Bank is expected to commit approximately \$5.5 million, and Rotary International has made major commitments to EPI worldwide (\$23 million to date), with a substantial proportion of these commitments being made in the Americas. UNICEF has continued its support, which, so far, amounts to about \$17 million. In addition, the evaluation of laboratory capabilities throughout the Region has been completed, a manual of laboratory methods has been developed, and the first international course on laboratory techniques is currently underway in Rio de Janeiro. A field manual for polio surveillance has been developed and is undergoing review, and improved surveillance techniques are being evaluated in two countries. While an excellent foundation for the program is being laid and many national programs are making good progress, unexpected problems have occurred which require immediate attention, most notably, an unanticipated increase in the incidence of poliomyelitis in Brazil.

Against this background, the Third TAG Meeting was held in Brasilia 10-12 September 1986. The meeting was inaugurated by Dr. Roberto Santos, Minister of Health, and Dr. Florentino Garcia Scarponi, PAHO Country Representative. The meeting was chaired by Dr. D. A. Henderson and Dr. Alan Hinman served as rapporteur. A complete list of participants as well as the agenda of the meeting is attached. The following represents a brief summary of the main agenda items and the conclusions and recommendations of the TAG.

PRESENT STATUS OF POLIO IN THE AMERICAS

Through week 35 of 1986, a total of 700 cases of polio had been reported from the Americas, compared with a total of 359 cases reported during the same period of 1985 and an annual total of 488 in 1985. Eight countries have reported polio thus far in 1986: Bolivia, Brazil, Colombia, Guatemala, Haiti, Mexico, Peru, and Venezuela. Only three countries have reported a significant increase in cases during 1986 (Brazil, Colombia, and Guatemala) but the largest increase has been in Brazil, which accounts for 66% of all cases reported in the hemisphere.

Through week 36 of 1986, a total of 724 suspected cases have been notified in Brazil. Of these, 157 are still under study, 319 have been classified as probable cases, 191 have been confirmed, and 57 are believed to be due to other causes. More detailed analysis of cases reported through week 31 indicates that 53.6% of cases have occurred in children less than 2 years of age, and 84.1% in children less than 5 years of age. Of cases from which a poliovirus has been isolated and typed, 71.6% were due to Type 3 and 20.0% to Type 1. This is to be contrasted with the situation in 1985, when Type 3 poliovirus accounted for only 23.7% of cases and Type 1 accounted for 72.4%. No vaccine had been received by 16.5% of cases, 31.7% had received 1 or 2 doses, 36.6% had received 3 or more doses, and 14% had unknown vaccination histories. Cases were concentrated in the northeastern part of the country (see below).

POLIO ERADICATION PROGRAM IN BRAZIL

Because of the high incidence of polio in Brazil, it was decided in 1979 to accelerate the immunization program. In 1980 National Polio Vaccination Days were begun, with two campaigns per year (in June and August) aiming to provide OPV to all children less than 5 years of age (approximately 20 million) regardless of prior vaccination history. Participation in the campaigns was excellent during the first eight cycles (1980-1983) with 95% or more of the expected vaccinations being given. However, in 1984 participation declined to 85-90% and in 1985 to 80-85%. The reasons for the decrease in participation are thought to include:

- decreased logistical support
- with the decreased incidence of polio, a growing perception that the disease is no longer a threat
- lower participation by children who had already received 3 or more doses
- lessened attention to the preparatory phases of each vaccination day
- introduction of other antigens, which complicated operations and necessitated further training.

Several steps have been taken to increase participation, including:

- designation of national and state level polio eradication coordinators
- special immunization days in the Northeast
- increased training of staff
- relocation of vaccination posts
- consultation/evaluation in the Northeast
- improvements in social marketing and health education

Before 1986 most health education messages were directed primarily at participation in campaigns. Now, efforts at social mobilization focus also on the concept of polio eradication as well as participation in campaigns. The mass media, schools (both public and private), and religious organizations are all involved in these efforts. Problems of inadequate coordination at the local level are being addressed by inter-sectoral seminars, and special seminars are being held in areas

with large numbers of cases or low participation rates. There has also been a strong move to assure uniformity of approach.

The current plan of action includes:

- formation of Executive Commissions at national and state levels
- community education/mobilization
- surveillance (case investigation, completion of pending investigations, training, information systems, information dissemination, and active search for cases)
- vaccination activities (routine vaccination, campaigns, "bloqueos," and coverage surveys)
- development of the laboratory network.

Coverage in the two 1986 cycles has improved somewhat over 1985, with 88% participation in the June campaign and 81% in the August campaign.

An additional component of the program in Brazil has been a pilot program of active search for cases through hospitals and health care settings likely to see cases of acute paralytic illness. In the state of Rio de Janeiro, appropriate ICDA codes were identified which might represent polio cases and hospitals were asked to identify individuals who would be responsible for reporting each week whether any cases diagnosed under these codes had been seen. Of 25 suspected cases reported thus far in 1986 in the state, 19 came from the hospital system; 8 cases have been confirmed as polio. In São Paulo, an intensive investigation is underway to detect the cause of all acute neurological illnesses which might possibly be polio. This involves testing for 23 different possible etiological agents.

Exciting data were presented from Bahia regarding the operation of the surveillance system in that state. Some of the indicators being followed included: proportion of cases with complete information, length of time required to complete an investigation, and rapidity with which investigations were carried out. In addition, useful analyses of coverage have been carried out to determine the number of "municipios" with coverage of at least 80% in each cycle in 1986.

TYPE 3 POLIO IN NORTHEASTERN BRAZIL

In February 1986 an outbreak of paralytic poliomyelitis began in the Northeastern Region of Brazil. By June 30, a total of 107 confirmed cases and 166 probable cases had been reported. Of 71 cases with laboratory confirmation, 56 (80%) were caused by Type 3 poliovirus, which was a change from the pattern observed during the past four years. Investigations revealed that 36% of confirmed cases had received at least three doses of OPV. Estimates of vaccine efficacy suggested that efficacy in infants and one-year-old children was lower than expected, although precise calculation of efficacy was not possible due to lack of exact information on the proportion of children in each age group who had received specified numbers of doses of vaccine. Serologic studies of

cases indicated that the mean titer of antibodies to Type 3 virus was lower than that to Types 1 and 2, possibly although not conclusively indicating a lower than desired effectiveness of the Type 3 component of the vaccine. Studies of bulk and finished vaccine titers at FIOCRUZ also indicated the possibility that the virus titer in the Type 3 component might be low, although other studies of FIOCRUZ and the PAHO reference laboratory did not confirm this.

Because of the current outbreak due to Type 3, it was decided to hold a special vaccination campaign in the Northeast and this was accomplished in April. However, the campaign did not stop the spread of cases, again suggesting there might be lower than normal efficacy, either as a result of insufficient Type 3 virus at the time of production or because of deficiencies in the cold chain. To gain further understanding of the serologic responses of children to different formulations of the Type 3 vaccine, special studies are now underway in Recife to evaluate the serologic responses to three different preparations of Type 3 OPV (monovalent, trivalent, and trivalent with twice the present titer of Type 3) to determine whether monovalent Type 3 vaccine or trivalent vaccine with an increased titer of Type 3 is required to provide an adequate serological response. The study involves 734 children aged 2 months to 5 years divided equally into the three vaccine groups. Most of the children have received some OPV previously (more than one-half have received one or two doses and approximately one-third have received three or four doses).

POLIO ERADICATION PROGRAM IN MEXICO

The two national immunization days (in January and April) were apparent successes with vaccinations in the second cycle reported to be equivalent to 95.3% of the target population. Rapid coverage surveys carried out in several states in the week following the second cycle suggested that the actual coverage was probably on the order of 80-85%. The technique of rapid coverage assessment was thought to be quite useful and will be continued. These surveys also provided valuable information on the reasons why some children did not participate. Key among these was that the child was ill on the day of the campaign. Since this should not have prevented participation, this knowledge is important in planning health education topics for the next cycle.

Important changes have taken place in the surveillance system in Mexico. A surveillance manual has been developed and distributed to state epidemiologists. All suspected cases are being investigated (usually within 24 hours) by trained epidemiologists from the central level. Although 1986 began with a large number of reported cases of polio, there has been a striking drop-off in incidence since the second campaign and, for the first time, there are now weeks in which no cases are reported.

POLIO ERADICATION PROGRAMS IN OTHER COUNTRIES

Brief reports were received of the programs in Colombia, Ecuador, and Peru. These reports highlighted some of the problems being faced both with surveillance and with vaccination coverage.

PARALYSIS ASSOCIATED WITH ORAL POLIO VACCINE

Information was presented about the experience with vaccine-associated polio in the United States. In the 12-year period 1973-1984, 105 (76%) of the 138 poliomyelitis cases reported were considered to be vaccine-associated: 35 occurred in recipients of OPV, 50 were in contacts of OPV recipients, 14 were in immune-deficient individuals, and 6 were in individuals with no history of receipt of, or contact with, OPV but from whom vaccine-like viruses were isolated. The overall frequency of vaccine-associated paralysis was 1 case per 2.6 million doses of OPV distributed. However, the relative frequency of paralysis varied according to the dose in series--the frequency associated with the first dose was 1 case per 520,000 doses whereas for subsequent doses it was 1 case per 12.3 million doses.

Data are not currently available from other countries in the Americas but these rates are compatible with those found in the international study coordinated by WHO for the period 1970-1979. As paralysis due to wild poliovirus becomes less and less frequent in the Region, it can be anticipated that a higher proportion will be vaccine-associated. While this serves to emphasize the importance of prompt and thorough investigation of every case of poliomyelitis, it should be recognized that available experience suggests that no more than 10-20 vaccine-associated cases will occur annually in Latin America.

CONCLUSIONS AND RECOMMENDATIONS

The TAG notes with pleasure the striking progress that has been made since the last meeting. This is particularly evident in Brazil and Mexico. The Group also wishes to express its appreciation for the rapid and generous support of bilateral and international agencies (e.g. USAID, UNICEF) and voluntary agencies such as Rotary International. This support has been a key factor in the progress achieved to date. In the face of all the external support being provided, it is essential for countries to begin now to plan for the continuation of efforts once the period of external funding has come to an end. Notwithstanding the progress to date, several problems remain which threaten the success of the program. Some of these are addressed below, by category.

1. National management

The intersectoral nature of the program, its national (and international) scope, and the multiplicity of external funding sources make it essential that an individual or small group be designated at the national level and given the responsibility for coordinating the program. This individual or group should also have the authority to affect policy.

2. Operational issues

Vaccination coverage should more regularly be analyzed at the level of the "municipio" (or smaller) and special efforts should be planned to increase coverage in areas where coverage is lower than 80%. This might include special vaccination cycles. Because of the problems in using

available population data to estimate coverage, other techniques, such as the rapid coverage surveys being used in Mexico, should be considered to obtain accurate data.

The occurrence of cases in areas where there have been repeated vaccination cycles (such as in Northeastern Brazil) raises questions about the adequacy of the cold chain. A special study of its adequacy would appear to be warranted. In all countries, however, continued attention to the appropriate conservation of vaccines from the manufacturer to the vaccine recipient is essential because of OPV's extreme sensitivity to heat.

Although the inclusion of other antigens in programs which have previously been exclusively directed at polio introduces operational complexities, the TAG continues to feel that efforts should be made to include other EPI antigens in the campaigns.

3. Surveillance

Considerable progress has been made in developing surveillance manuals and a beginning has been made in the development of national surveillance systems. Nonetheless, surveillance issues continue to pose the most critical problems. The TAG notes that in some countries the number of suspected cases notified is equal to, or greater than, the number of probable or confirmed cases. The SUSPECTED case categorization should be very temporary. Within 48 hours of initial notification, every SUSPECTED case should either be categorized as a PROBABLE case or dropped as due to some other cause. Similarly, PROBABLE cases should be finally classified within 10 weeks of notification as either CONFIRMED polio or NOT POLIO.

All investigations should be carried out by specially trained epidemiologists from the state (in large countries such as Brazil) or national level. Every effort should be made to obtain both acute AND convalescent sera as well as stool specimens in order to increase the likelihood of confirming the case. Efforts should also be made to determine WHY the case occurred--vaccine failure, unvaccinated child (and if unvaccinated, why?), etc.--as a guide for remedial efforts.

Surveillance systems will undoubtedly vary from country to country and even within countries. Nonetheless, some common principles should be followed. At least one reporting source should be identified in each "municipio" (or comparable small geo-political unit) and should report to the state (or national) level each week, whether polio cases have been seen or not. Participation of the reporting source should be monitored as one form of evaluation of the surveillance system. Other indicators of the adequacy of the surveillance system should be developed and used, including the interval between case onset and notification, interval between notification and investigation, proportion of cases with complete information, length of time to complete the investigation, proportion of reporting sources reporting each week, etc.

All countries reporting few or no cases should augment their detection system by identifying all hospitals and rehabilitation centers where cases are apt to be seen and by asking them to report each week all

cases of febrile paralytic disease, Guillain-Barré syndrome and transverse myelitis. This will undoubtedly require repeated visits by program surveillance officers to establish the system. All such cases should be investigated by specially trained epidemiologists and laboratory specimens should be obtained and tested promptly. Other efforts to confirm the absence of polio might include lameness surveys in areas which have gone several years without reported cases.

4. Laboratory support

Improvements in laboratory support and development of a comprehensive laboratory network are urgently needed. The TAG notes the considerable progress that has already been made in the evaluation of national laboratories, the development of laboratory manuals, and the training of laboratory personnel. As a next step, the TAG feels it appropriate for PAHO to designate a limited number of laboratories (5-6) to receive immediate support which would allow them to function as international resources. Based on the evaluations carried out, the TAG suggests that the laboratories of Argentina, Brazil (FIOCRUZ), Colombia, Guatemala, Mexico, and Trinidad (CAREC) might be appropriate selections for the first stage of development.

For purposes of polio eradication, the primary diagnostic information needed from the laboratory is whether the causative agent is poliovirus or not. It is not necessary to pursue further a possible non-polio etiology. In a few areas, however, where capacity already exists, it will be of interest to carry out the more complex and expensive tests necessary to identify the non-poliovirus etiologic agent on at least a sample of cases. The decision to carry out this additional effort should be made in the full awareness of the costs and labor involved.

In some countries, the close coordination necessary between the laboratory and the epidemiologists/program managers has not yet been developed. The laboratory plays a critical role in surveillance, which itself is key to the success of the program. Every effort should be made to ensure that laboratory, epidemiologic, and operational personnel work closely and effectively together, perhaps to the extent of including representatives of each activity in case or outbreak investigations.

5. Research

Both basic and operational research will be required in the eradication program. The most pressing needs seem to be in the area of operational research targeted to solve existing problems--e.g. cold chain system, vaccine non-acceptance, most effective surveillance tools in a particular area. Additionally, consideration should be given to an evaluation of coverage by individual year of age to determine whether 3- and 4-year-old children are participating in vaccination days to the same extent as infants and younger children, and whether inclusion of 3- and 4-year-olds in the target population affects estimates of coverage in the population most at risk. More basic tools are also needed, such as a rapid test to differentiate wild from vaccine virus. The TAG believes PAHO should coordinate development of a formal research agenda and then seek to ensure the research is carried out.

6. Brazil

The Type 3 outbreak in the Northeast is puzzling and apparently could be due either to selective failure of the Type 3 component of OPV or to overall failure of OPV (e.g. because of cold chain problems) in an environment where Type 3 poliovirus happened to be circulating. The steps that have been taken to address the current problem are appropriate and the studies now underway should be completed as soon as possible. Further approaches which might be taken to help identify the causes of the problem include a careful evaluation of the cold chain, assessment of coverage at the local level by means of surveys to determine if low coverage may exist in affected areas, and further analysis of available data to see if there is any apparent difference in clinical efficacy of the Type 1 and Type 3 components. If there is any indication of problems with the cold chain, the use of temperature indicators to accompany vaccine should be considered.

7. Next TAG meeting

The next TAG meeting was tentatively set for late April 1987, in Guatemala. Primary agenda items should include presentations on the current status of activities in the Central American countries, updates from Brazil and Mexico, discussion of Type 3 poliovirus and vaccine, and consideration of a research agenda.