EPI Newsletter

Expanded Program on Immunization in the Americas

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Review of Poliomyelitis in the Americas

Introduction

Since the countries of the Region of the Americas pledged their commitment to eradicate poliomyelitis by 1990, great emphasis has been placed on the improvement of surveillance activities and the active search for cases. These, in turn, have resulted in an increase in the number of cases reported and in the overall polio morbidity rate for the Region (Figure 1).

Morbidity Rates

By the end of 1986, 931 cases of poliomyelitis had been reported from 13 countries, compared with 869 reported in 1985 and 536 in 1984, for 15 and 13 countries, respectively.

In 1987, during the first 50 weeks, 12 countries had reported 830 cases, whereas for the same period in 1986, 14 countries had reported 911 cases. This decrease in reported poliomyelitis cases is attributed to a significant decrease in poliomyelitis activity in Brazil and decreases in the number of cases reported by Guatemala and Haiti. All the other countries of the Region are reporting more cases in 1987 than in the previous year (Figure 2). The changes for each country can be observed in their poliomyelitis morbidity rates (Figure 3). As shown in Figure 4, through week 28, the number of cases reported in 1987 was lower than that reported in 1986. From week 29 onward, there has been an increase in the number of cases reported. The increase for this period is attributed mainly to Brazil, Colombia, El Salvador and Peru. Colombia, El Salvador and Peru have increased their active search in the third trimester. However, in Brazil, for 1987 the significant decline in reported cases can be attributed to the state, regional and national vaccination campaigns carried out in 1986 and 1987. In Brazil, the proportion of cases reported from the Northeastern region has decreased from 73% to 61% between 1986 and 1987. In Pernambuco, Alagoas and Sergipe states, an OPV vaccine with a new formulation for type 3 poliovirus was administered in 1986, and a lower proportion of poliomyelitis cases was reported in 1987.

Age Distribution and Vaccination Status

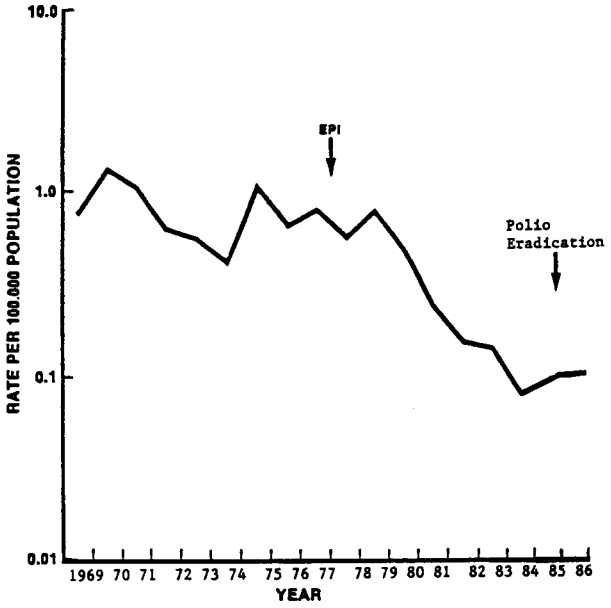
For 1986, age information was obtained for 890 of the 931 confirmed cases and shows that 79% of the cases were under five years of age (Figure 5). The age-specific morbidity rate was highest in the population under one year of age (Figure 6). The vaccination status for 70% of the cases was obtained. For the Region, 61% of the cases had received less than 3 doses of OPV. When Brazil data is not included, this proportion increases to 72% (Figure 7). In Brazil, 46% of the cases had received 3 or more doses of OPV.

Virus Isolation

For 1987, data about poliovirus isolation was obtained from all countries except those in Central America. Enteroviruses were isolated from 90 of the 336 stool samples collected and for which final results were obtained (27%). The following are the enteroviruses isolated: Polio Type I - 43 (48%); Polio Type II - 7 (8%); Polio Type III - 36 (40%); Vaccine-like Poliovirus - 2 (2%); and other entero-

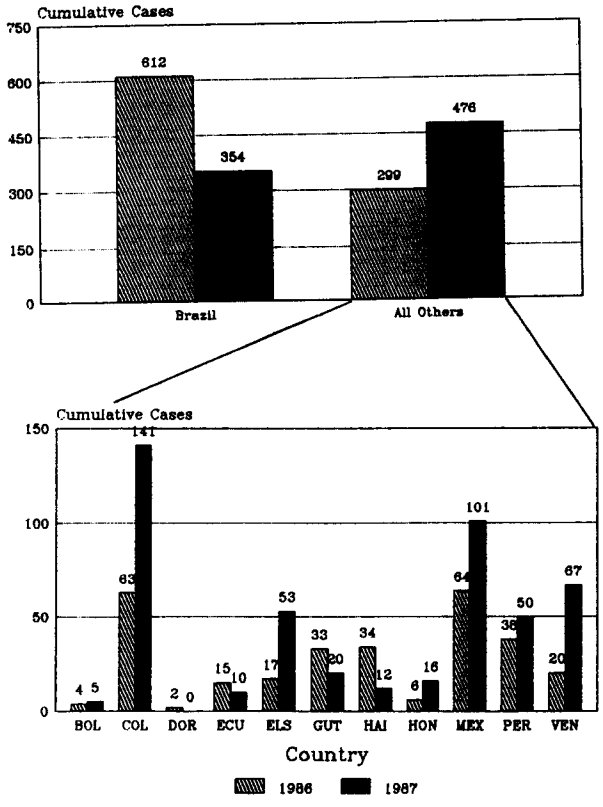
In this issue:

FIGURE 1. Annual Reported Morbidity due to Poliomyelitis (Per 100,000 Population) Region of the Americas, 1969-1986



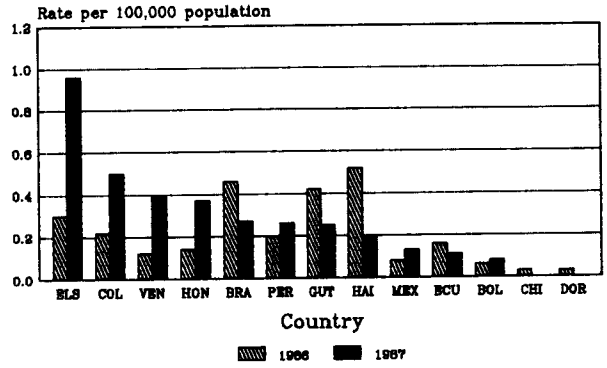
* Provisional Data
Source: PAHO

FIGURE 2. Polio Cases Reported by Country* Region of the Americas Weeks 1 - 50, 1986 and 1987



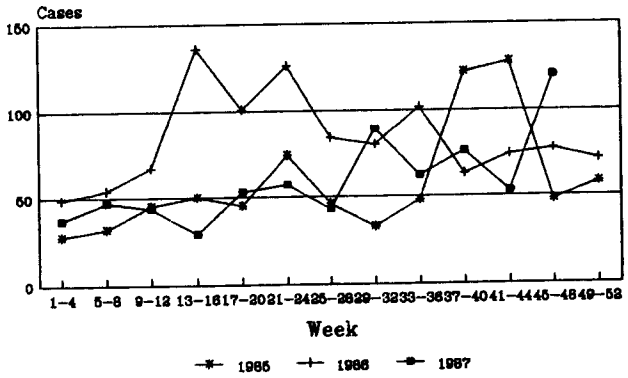
* Provisional data
Source: PAHO

FIGURE 3. Polio Morbidity Rates, by Country, 1986 and 1987 (to week 50)* Region of the Americas



* Provisional data
Source: PAHO

FIGURE 4. Polio in the Americas Cases Reported by 4-week Periods 1985, 1986, 1987 (to week 48)*



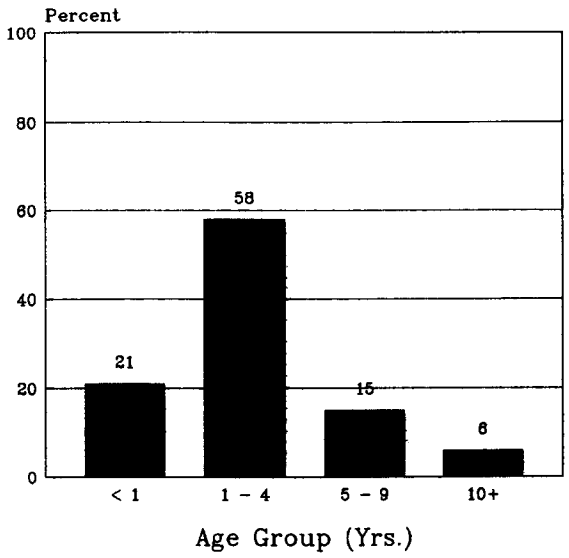
* Provisional data
Source: PAHO

viruses -2 (2%). If we exclude Brazil, where 54% of the isolates were Polio Type III, the overall distribution of the three polioviruses is respectively 69%, 2% and 29%. For Brazil, the proportion of types of polioviruses isolated for 1986 and 1987 is similar, Type I, 28% and 28% respectively, Type II, 13% and 14% and Type III, 59% and 54%.

Impact of National Vaccination Days

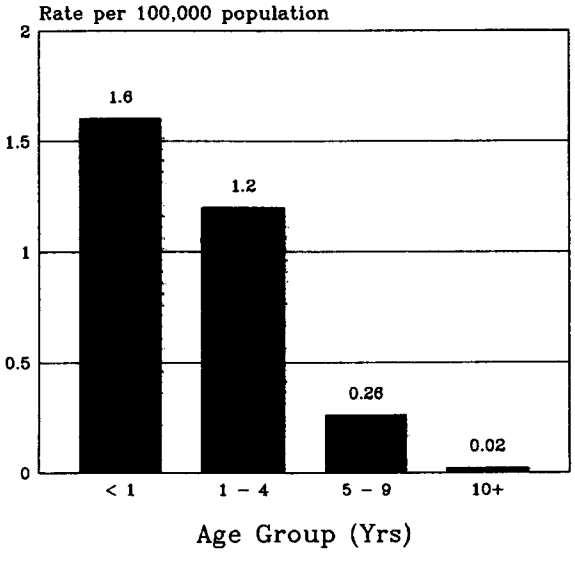
National vaccination days, as recommended by the Technical Advisory Group on Polio Eradication in the Americas (TAG) for the countries with circulation of wild poliovirus, have been conducted in 13 countries in 1986 and 1987. In 1986, in Brazil and Mexico, these national efforts had a significant impact on the number of confirmed poliomyelitis cases reported (Figures 8 and 9).

FIGURE 5. Confirmed Cases of Polio
Age Distribution (%)
Region of the Americas, 1986



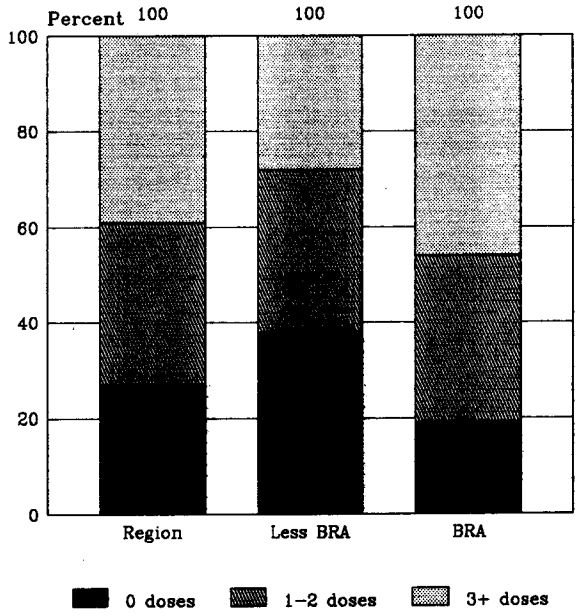
Note: Data not available for 43 cases.
Brazil 5-14 included in 5-9 group.
Source: PAHO

FIGURE 6. Age-Specific Morbidity Rates
Region of the Americas, 1986



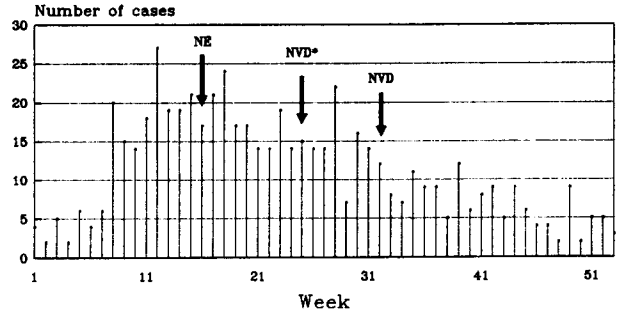
Note: Brazil 5-14 included in 5-9 group.
USA and Canada not included.
Source: PAHO

FIGURE 7. Confirmed Cases of Polio*,
by Vaccination Status (%)
Region of the Americas, 1986



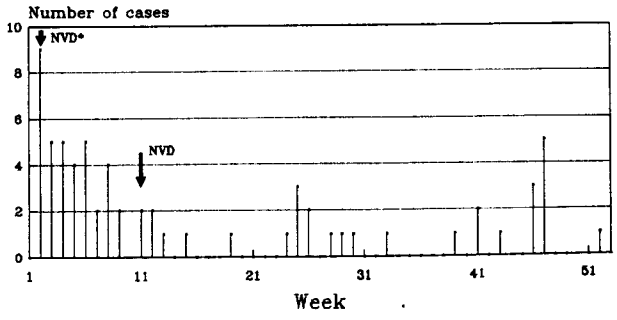
* Data available for 650 of the 931 confirmed cases.
Source: PAHO

FIGURE 8. Confirmed Cases of Polio,
by Week of Onset
Brazil, 1986



Note: National Vaccination Day (NVD), in North-east Region (NE).
Source: "Brazil and Polio", Min. of Health, Brazil.

FIGURE 9. Confirmed Cases of Polio,
by Week of Onset
Mexico, 1986



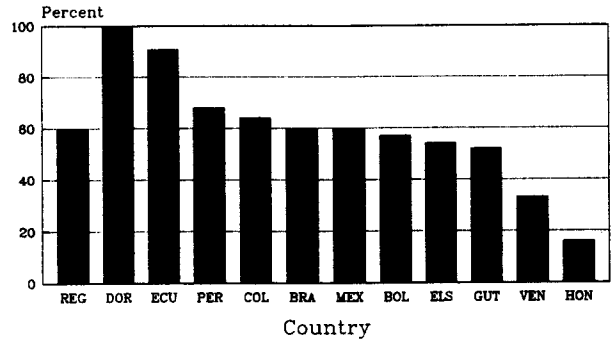
Note: National Vaccination Day (NVD)
Source: Dirección General de Epidemiología, México.

Monitoring of Surveillance Activities

For the Region, in 1986, 931 of the 1552 reported probable and suspect cases were confirmed as poliomyelitis (60%). This ranges from 100% of reported cases which were confirmed in the Dominican Republic to 18% in Honduras (Figure 10). Only two countries, Honduras and Venezuela, have less than 50% of their reported cases confirmed, an indication that the case definition of suspected and probable polio cases is reasonably specific.

Information on the source of notification was available for Brazil and Mexico. Routine notification only accounted for one third of the reported cases in Mexico compared to 80.2% in Brazil, the other main sources being the active search for cases and cases reported directly to virology laboratories. In Mexico, cases reported by institutions which did not report before the improvement of the surveillance system accounted for 17.5% of the cases (Table 1).

FIGURE 10. Percent of Probable Cases Confirmed by Country and for the Region of the Americas, 1986



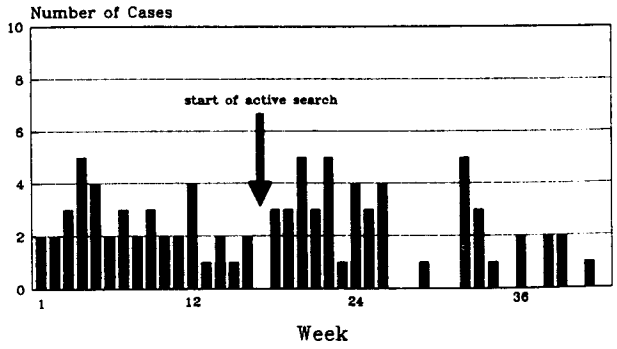
Source: PAHO

TABLE 1. Probable Cases of Polio by Source of Notification Brazil and Mexico, 1987

SOURCE	Brazil up to week 40 No.	%	Mexico up to week 38 No.	%
Routine notification	113	80.2	46	33.6
Active search	16	11.3	34	24.8
Laboratory	7	5.0	33	24.1
Other case	2	1.5	0	0
Death	3	2.0	0	0
Institutions not reporting before improvement of surveillance	0	0	24	17.5
TOTAL	141	100.0	137	100.0

Source: National Coordination for Poliomyelitis Eradication, Brazil, 1987
General Direction of Epidemiology, Mexico, 1987.

FIGURE 11. Cases of Polio by Week Reported Mexico, Weeks 1-42, 1987



Source: PAHO

Because surveillance systems are still being developed, the interval between onset of symptoms of poliomyelitis and notification of the case is still above the maximum of two weeks set as an indicator of reporting efficiency. In 1987, the proportion of cases reported within 2 weeks after onset of symptoms ranged from 38% in Colombia to 60% in Peru. For those countries with information available, Ecuador has the smallest average interval (16 days) and Peru has the highest (44 days). The delay in notification is attributed mainly to the reporting of cases found through active search activities, whose onset had not been picked up by the routine information system. The impact of active search on the number of cases reported can be seen in Figure 11 where the average number of cases reported in Mexico in the four weeks before and after active search increased from 1.5 to 3.5 cases.

Containment Activities

A key element of the eradication program, in addition to early case notification, is the organization of proper containment activities. Up to now, in most countries, containment activities are not performed on time and usually are not extensive enough to have an impact on stopping the circulation of the wild poliovirus. For example, in El Salvador containment activities were carried out in only 26% of the probable poliomyelitis cases reported and usually did not cover more than a small area around the case.

Case Follow-Up

To date, most of the cases are confirmed by the presence of residual paralysis 60 days after the onset of symptoms. Generally, all reported cases are followed-up for the verification of presence of residual paralysis, but delays in confirmation are frequent. In Peru, where 100% of the reported cases were followed-up in 1986, the average time between onset of disease and confirmation was 4 months. In Brazil, 38% of the cases were confirmed within 2 months but 39% were confirmed in 3 months or longer.

Differential Diagnosis

The disease most frequently confused with poliomyelitis is Guillain-Barré Syndrome (GBS). This diagnosis represents at least one fifth of the discarded poliomyelitis cases occurring in children under five years of age.

Conclusion

The data presented in this report shows the first signs that surveillance systems start being activated towards the needs of the program of early detection of suspected polio cases and prompt response to outbreak control. Still, much remains to be done if the goals of the program are to be achieved by 1990. Only recently, most of the additional field staff that will cooperate at regional, inter-country and country levels have been appointed. Furthermore, the network of laboratories is in final stages of establishment and training on surveillance is being intensified in 1987. It is expected that the program will be at full speed by the beginning of 1988 and program strategies and activities can then be adjusted and further accelerated.

National EPI Plans of Action: Preliminary Financial Analysis

Introduction

In May, 1985 the Director of PAHO announced a proposal to eradicate the indigenous transmission of wild poliovirus from the Americas by 1990, as an initiative to accelerate the implementation of the Expanded Program on Immunization in the Americas. In September 1985, the PAHO Directing Council endorsed the proposal and approved a Regional Plan of Action to reach those proposed objectives.

Several multilateral, bilateral and private sector agencies pledged strong support to the initiative. Besides PAHO, the agencies that strongly supported the program were the Agency for International Development of the United States of America (USAID), UNICEF, the Inter-American Development Bank (IDB) and Rotary International. The support was both political and financial, with pledges that totalled over 85 million dollars for a five-year period.

In order to assure optimal utilization of these resources and avoid duplication of efforts these various agencies formed an Inter-Agency Coordinating Committee (ICC) with the aim of overseeing the implementation of the program at the regional level. This Committee meets twice yearly to review progress and discuss any problem that may arise at a regional or country level in the process of implementing the Plan.

As these additional resources generated by the program were made available, country programming and financial analysis became critical issues. It was evident that if program sustainability was to be assessed, it had to be possible to analyze the impact of a decline over the years in external inputs. For this purpose, a methodology for EPI national country programming that had been evolving in PAHO since 1981 was further elaborated with inputs from the other ICC agencies. As a result, the national plans began to be developed as of January 1987.

Methodology

The national plans include a narrative report, covering a five-year period (1987-1991) and stating the objectives and targets of the program, with strategies and tactics. A detailed analysis of activities to be implemented during the first year in the areas of action (biologicals, cold chain, training, social communication, operational costs, supervision, epidemiological surveillance, research and evaluation), is also included. For each activity there is an expected output and a timeframe for implementation. Furthermore, the responsibility for each activity is identified and the total cost in terms of capital or recurrent expenditure is defined. The cost of the activity is then analyzed by source of funding (national and/or external), and for the external funding, a breakdown by agency is provided. An estimation of expenditures by each of these areas of action is then provided for the following four years.

The plan of action is originally elaborated by national authorities at the Ministry of Health and once a draft is available, it is discussed by the Government and the ICC agencies, which then have the opportunity to comment, make suggestions and verify the possibility of financial support and their level of commitment by area of action.

Once these discussions take place and a consensus is reached on the feasibility of the Plan, a Memorandum of Understanding is signed between the Government and all ICC agencies for the implementation and support of the Plan. This Memorandum of Understanding outlines the responsibilities of the Government as well as the responsibilities of each ICC agency during the five-year period covered by the Plan. Furthermore, there is a provision for quarterly meetings of the ICC agencies with officials of the Ministry of Health in which the Plan of Action can be monitored and adjusted. At the end of each

year, an evaluation is performed and an outline of detailed activities is prepared for the following operating year.

Preliminary Financial Analysis

Data is already available for 19 countries in Latin America and the Caribbean, which have completed this programming process. These countries account for over 96% of the population of Latin America and the Caribbean. Over 63 million dollars were committed by Governments and the ICC agencies for the implementation of these national Plans of Action. The breakdown of these funds by source is shown in Figure 1.

When national resources are added, the total estimated cost of these Plans are in the order of over 450 million, being 85% national funds and 15% external funds.

The proportion of external funds varies from a low of 4% in Brazil to a high of 48% in Bolivia and nearly 75% of these inputs are related to capital expenditures, particularly cold chain, transport, training, laboratories and social communication (Figures 2 and 3). Nearly 90% of the recurrent costs are being covered from national funds.

With the exception of Rotary International, which finances five-year supplies of oral polio vaccine, and "other agencies" (which account for less than 2% of the total external inputs) the funds from the other ICC agencies, PAHO, AID and UNICEF are for capital expenditures (nearly 65% of the total external input) (Figure 4).

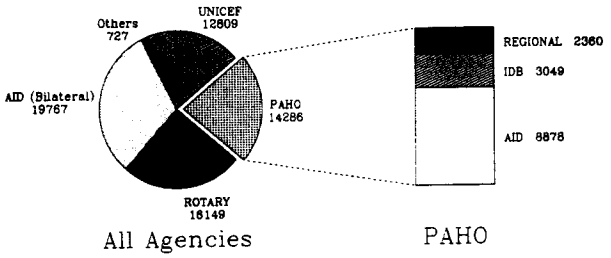
It is clear that, when figures are spread over the five-year period, most of the capital expenditures are upfront, taking place during the first two to three years, and that national expenditures account for the bulk of the recurrent costs. A very small proportion of national resources are devoted to capital expenditures.

It is also interesting to note that as external funding declines in the fourth year and levels off in the fifth, the national expenditures tend to increase slightly (Figure 5).

These data suggest that it will be necessary to continue external funding beyond 1991, at levels similar to those which existed before the acceleration effort started. It is also important to note that there is a slight increase in national expenditures as the five-year period ends, suggesting the commitment of the Governments to the program and indicating that programs will be sustained.

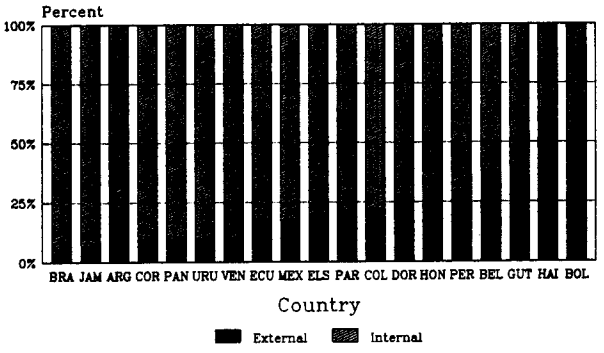
As mentioned, this analysis is preliminary and as this programming and evaluation process continues, data will need to be refined. But it is important to note the level of commitment that the Governments and external agencies have so far displayed, and that this constitutes a reassurance that the goals of EPI and the eradication of polio from this hemisphere will be reached by 1990.

FIGURE 1. EPI in the Americas
Inputs from External Agencies*
1987-1991, US$ (Millions)



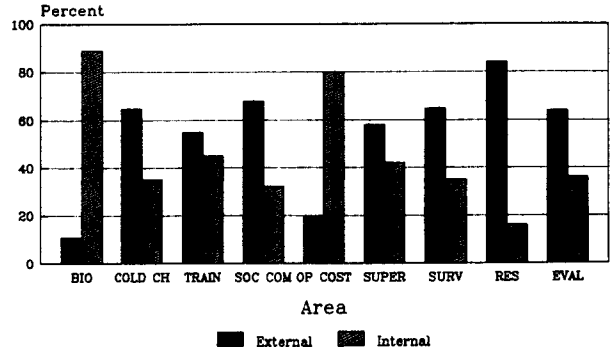
Source: PAHO
* Provisional data (19 countries)

FIGURE 2. Proportion of Financing of EPI
by Country and Source
Region of the Americas, 1987-1991



Source: PAHO
* Provisional data (19 countries)

FIGURE 3. Proportion of External Funds*
by Area of Action, 1987-1991
Region of the Americas



Source: PAHO
* Provisional data (19 countries)

Reported Cases of EPI Diseases

Number of reported cases of measles, poliomyelitis, tetanus, diphtheria and whooping cough, from 1 January 1987 to date of last report, and for same epidemiological period in 1986, by country

Subregion and Country	Date of last report	Measles		Polio-myelitis§		Tetanus				Diphtheria		Whooping Cough	
						Non-neonatal		Neonatal					
		1987	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987	1986
NORTHERN AMERICA													
Canada	24 Oct.	1 978	14 585	—	—	4**	4**	...	...	4	4	887	1 827
United States	05 Dec.	3 554	5 914	—	8	37**	59**	...	...	3	—	2 314	3 943
CARIBBEAN													
Antigua & Barbuda	23 May.	—	—	—	—	—	—	—	—	—	—	—	—
Bahamas	07 Nov.	38	68	—	—	—	—	—	—	—	—	—	—
Barbados	10 Oct.	2	1	—	—	1	2	—	—	—	—	—	1
Cuba	18 Jul.	684	2 550	—	—	3	10**	—	...	—	...	71	237
Dominica	10 Oct.	77	40	—	—	1	—	—	—	—	—	—	—
Dominican Republic	23 May.	99	241	—	2	13	18	3	5	23	20	22	74
Grenada	07 Nov.	6	16	—	—	—	—	—	—	—	1	1	7
Haiti	*	...	...	12	34	...	...	...	...	...	...	...	...
Jamaica	*	...	...	—	—	...	...	...	...	...	...	...	...
St. Christopher/Nevis	*	...	...	—	—	...	...	...	...	...	...	...	...
Saint Lucia	07 Nov.	4	7	—	—	—	—	—	—	—	—	—	—
St. Vincent and the Grenadines	15 Aug.	—	...	—	—	...	...	...	...	...	...	...	...
Trinidad & Tobago	07 Nov.	306	2 576	—	—	3	12	—	—	—	—	12	12
CONTINENTAL MID AMERICA													
Belize	07 Nov.	221	49	—	—	—	...	—	...	1	...	—	7
Costa Rica	15 Aug.	3 426	1 263	—	—	1**	1**	...	...	...	—	100	75
El Salvador	12 Sept.	276	167	53	17	32	25	14	25	2	—	120	287
Guatemala	18 Jul.	276	...	20	33	49**	...	...	...	—	...	141	...
Honduras	07 Nov.	858	454	16	6	12	44	6	12	—	—	310	180
Mexico	05 Dec.	2 691	8 708	101	65	264	247	...	...	21	31	745	978
Nicaragua	28 Feb.	163	425	—	—	...	...	1	5	—	—	19	84
Panama	28 Mar.	1 037	1 509	—	—	1	2	1	—	—	—	4	14
TROPICAL SOUTH AMERICA													
Bolivia	*	...	...	5	4	...	...	...	...	...	...	...	...
Brazil	15 Aug.	42 297	47 117	354	612	949	1 259	256	349	924	1 119	11 077	15 911
Colombia	*	...	...	141	63	...	...	...	...	...	...	...	...
Ecuador	18 Jul.	593	452	10	15	61	49	48	45	7	10	238	534
Guyana	*	...	...	—	—	...	...	...	...	...	...	...	...
Paraguay	12 Sept.	710	242	—	—	37	30	27	34	13	16	121	103
Peru	25 Apr.	375	...	50	38	8	...	12	...	1	...	314	...
Suriname	12 Sept.	4	20	—	—	1	—	—	...	—	—	—	—
Venezuela	12 Sept.	15 432	9 411	67	20	1	48	12	8	2	3	695	2 353
TEMPERATE SOUTH AMERICA													
Argentina	18 Jul.	1 477	1 683	1	—	50**	39**	...	...	9	10	741	933
Chile	10 Oct.	1 936	8 685	—	3	13	15	3	—	153	179	31	28
Uruguay	15 Aug.	367	37	—	—	3	1	—	—	—	—	346	596

* No 1987 reports received.

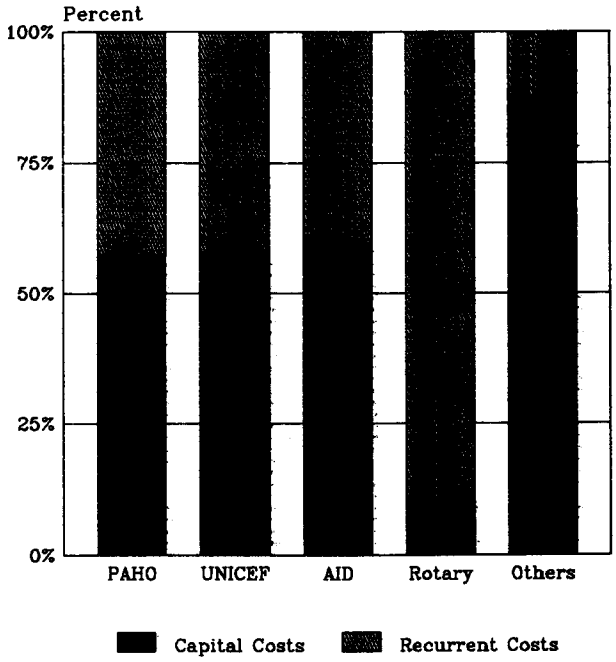
** Tetanus data not reported separately for neonatal and non-neonatal cases. Total tetanus data is reported in non-neonatal column.

§ Data for polio is through week 50 (ending 19 December 1987).

— No cases

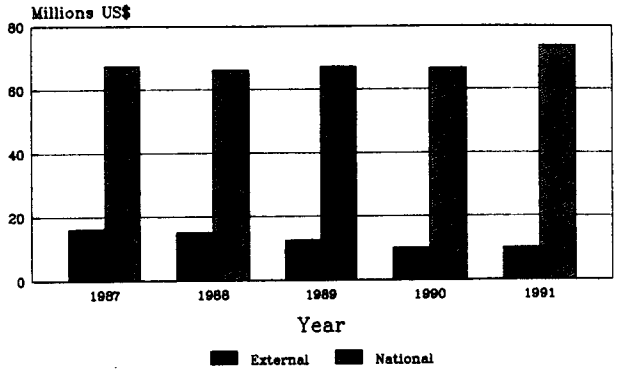
... Data not available

FIGURE 4. Proportion of External Funding by Agency for Capital and Recurrent Costs, 1987-1991 Region of the Americas



Source: PAHO
* Provisional data (19 countries)

FIGURE 5. EPI in the Americas External and Internal Inputs* 1987-1991



Source: PAHO
* Provisional data (19 countries)

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