EPI Newsletter

Expanded Program on Immunization in the Americas

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Poliomyelitis Update, 1985

This has been a decisive year for the EPI in the Americas, marking the beginning of a concerted, coordinated effort to conquer poliomyelitis in the hemisphere. 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 proposal to eradicate the indigenous transmission of poliovirus in the Americas by 1990; in July, a Proposal for Action was endorsed by the first meeting of the Technical Advisory Group 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, with representatives from the Pan American Health Organization, UNICEF, the U.S. Agency for International Development, the Interamerican Development Bank, and Rotary International, was held to discuss how other agencies could support polio eradication activities.

At the country level, immunization activities were accelerated by the initiation of National Vaccination Days in Peru, Paraguay, Ecuador, El Salvador and Honduras. Several other countries, such as Colombia, Brazil, Bolivia, and the Dominican Republic, have already been using this strategy for a number of years.

By the end of 1985, 470 cases of poliomyelitis had been reported from 14 countries in Latin America and the Caribbean, as compared to 542 cases reported from 13 countries in 1984. These figures reflect the continuing downward trend which has been seen in poliomyelitis activity in the Region since the EPI was established in 1977 (Figure 1). A breakdown of reported polio cases by country for 1985 and 1984 is shown in Table 1.

TABLE 1. Countries reporting cases of poliomyelitis in 1984 and/or 1985, Region of the Americas.

	1984	1985
Argentina	—	2
Brazil	82	138
Canada	1	—
Colombia	18	18
Dominican Republic	—	2
Ecuador	—	1
El Salvador	19	6
Guatemala	6	26
Haiti	63	80
Honduras	76	4
Mexico	128	144
Paraguay	3	3
Peru	129	39
Suriname	1	—
United States	7	5
Venezuela	9	2
Total cases	542	470

— No cases

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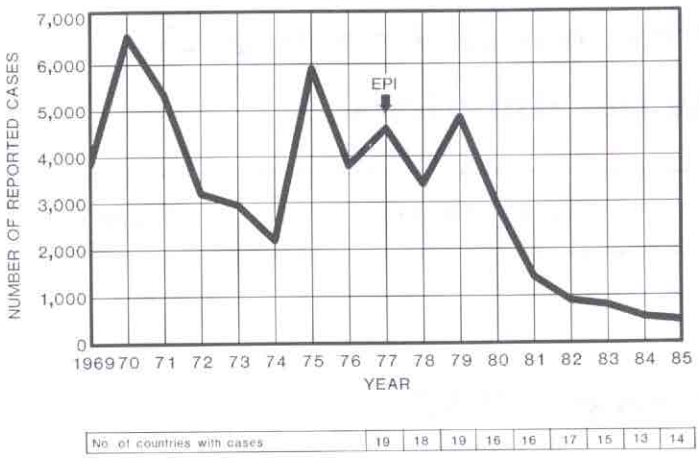
FIGURE 1. Annual number of reported cases of poliomyelitis in the Region of the Americas, 1969-1985



No. of countries with cases	19	18	19	16	16	17	15	13	14

Administration of live polio vaccine in National Vaccination Days has been instrumental in reducing disease incidence in many countries.

Nicaragua Supports Polio Eradication

The Government of Nicaragua has officially declared its unconditional support to the Pan American Health Organization in its efforts to aid Member Countries to eradicate the indigenous transmission of wild poliovirus in the Americas by 1990.

Public health services in Nicaragua have improved and expanded dramatically since 1979. During that time, the country has strengthened its public health infrastructure, and developed promotional, prevention, treatment and rehabilitation services which involve active community participation.

Vaccination programs have made great strides in the last three years, and the achievements have been particularly notable in the struggle against poliomyelitis. Since 1982 no cases of poliomyelitis have been reported in Nicaragua, in spite of political problems which have hindered implementation of Ministry of Health programs, especially National Vaccination Days.

In its official statement, the Ministry of Health declared that Nicaragua will make available its accumulated experience and technical capabilities in support of the polio eradication goal.

Source: *Declaration on the Eradication of Indigenous Transmission of Wild Poliovirus in the Americas by 1990*, Nicaragua, Ministry of Health, 21 November 1985.

PAHO-Mexico Agreement on EPI Training and Research

PAHO and the School of Public Health of Mexico have signed an agreement under which $60,000 will be made available in 1986 to support EPI training activities and operational research. The Divisions of Epidemiology and Preventive Medicine of the Secretariat of Health are also collaborating in this effort.

The agreement aims to correct some of the problems detected in Mexico during the national EPI evaluation in July 1985. Specific activities to be carried out include training of personnel at all levels in epidemiologic surveillance, planning and evaluation; development of training materials in conjunction with the Schools of Public Health of Rio de Janeiro and of the University of Buenos Aires; and operational research to determine coverage achieved in National Vaccination Days, reasons for dropouts, and the epidemiology of measles and neonatal tetanus.

These activities will also benefit other countries of Latin America and the Caribbean, as the Mexican School of Public Health joins those of Brazil and Argentina in receiving PAHO support to become a center for EPI training and research.

Caribbean EPI Managers Hold Second Meeting in Trinidad

EPI Managers from 15 English-speaking Caribbean countries, as well as Suriname and Guadeloupe, met in Port of Spain, Trinidad, from 18 to 22 November to review progress of their immunization programs over the past two years, write 1986 national plans of action, and set new vaccination coverage targets. Representatives from UNICEF and Rotary International as well as eight PAHO resource persons were also in attendance.

The participants met in small working groups with representatives from three or four countries in each group, to discuss the extent to which the plans of action prepared at the second EPI Managers Meeting in 1983 had been implemented, obstacles encountered and solutions found. Based on the group discussion, each country prepared a new plan for 1986 and set vaccination coverage targets for children under one year of age.

Technical sessions were also held on the polio eradication initiative, the Revolving Fund, the latest cold chain developments, the success of the EPI in St. Kitts, the U.S. goal to eliminate indigenous measles transmission, and DPT vaccine.

TABLE 1. 1984 vaccination coverage achieved in children under one year of age, and coverage targets set for 1986 English-speaking Caribbean, Suriname, and Guadeloupe

Country	DPT		POLIO		MEASLES		BCG	
	84 cov.	86 tar.	84 cov.	86 tar.	84 cov.	86 tar.	84 cov.	86 tar.
Antigua and Barbuda	94	95	92	95	73	90	—	—
Bahamas	69	85	69	85	63	85*	—	—
Barbados	83	90	77	85	84	85	—	—
Belize	54	60	54	60	44	50	77	85
Bermuda	40	80	41	80	42	80*	—	—
Dominica	84	90	82	90	85	90	84	90
Grenada	76	80	75	80	31	80	—	80
Guadeloupe and Martinique	...	...	...	...	...	...	...	...
Guyana	70	80	67	80	56	75	85	85
Jamaica	58	70	57	70	62	70	50	65
Montserrat	84	100	82	100	88	100	81	100
Saint Lucia	83	90	84	90	60	75	80	90
St. Christopher/Nevis	97	97	97	97	85	95	...	75
St. Vincent and the Grenadines	86	95	90	95	92	97	...	75
Suriname	80	90	79	90	79	85	32	—
Trinidad and Tobago	65	85	66	85	10	40**	—	—
Turks and Caicos Islands	60	95	62	95	44	95	100	100

*MMR vaccine
**MR vaccine
—Vaccine not given
...Information not available

Summary of Work Plans

Most of the countries in the Caribbean are achieving high vaccination coverages in children under one, and have reduced morbidity and mortality from the EPI diseases to very low levels. The Revolving Fund is successfully supplying countries with vaccines and related supplies, and the cold chain continues to be improved through training and additional equipment. One measure of the success achieved is the number of countries which include in their work plans activities to extend vaccination coverage in various ways: five countries mention inclusion of rubella in their national immunization schedules, six countries will include or extend coverage with TT vaccine, and five countries plan to increase measles vaccine coverage by widening the age interval of the target population. Four countries mention the need to pass or implement legislation making immunization compulsory for school entry.

A number of countries still have problems related to information systems and have programmed activities to enable them to better determine target populations at the operational level, to stimulate reporting by private practitioners and to train health workers to analyze and use data collected. The problem of dropouts remains a concern, as it has been in past years, and nine countries have planned activities to improve follow-up in this group.

Many countries have also programmed activities in the areas of health education, promotion, and community participation. These include use of TV, radio, newspapers, posters and leaflets to heighten community awareness of the need for immunization and to provide information on how to obtain services; talks with community groups; use of slides to inform mothers at clinics, and use of folk media, such as drama and music, to convey health messages.

Polio Eradication

Of particular note is the number of countries which have planned activities related to polio eradication, such as the need to establish or improve surveillance systems for

the notification of acute cases of paralysis in children, distribution of PAHO polio manuals and guidelines when these become available, and education of health workers about polio. Though all countries of the English-speaking Caribbean (except Jamaica) are classified in Group II according to the Polio Eradication Plan of Action (that is, they have been free of reported cases of polio over the last three years, they are aware of the dangers of complacency and the need to increase the sensitivity of their polio surveillance systems to ensure the region remains free of the disease.

Technical Cooperation Among Countries

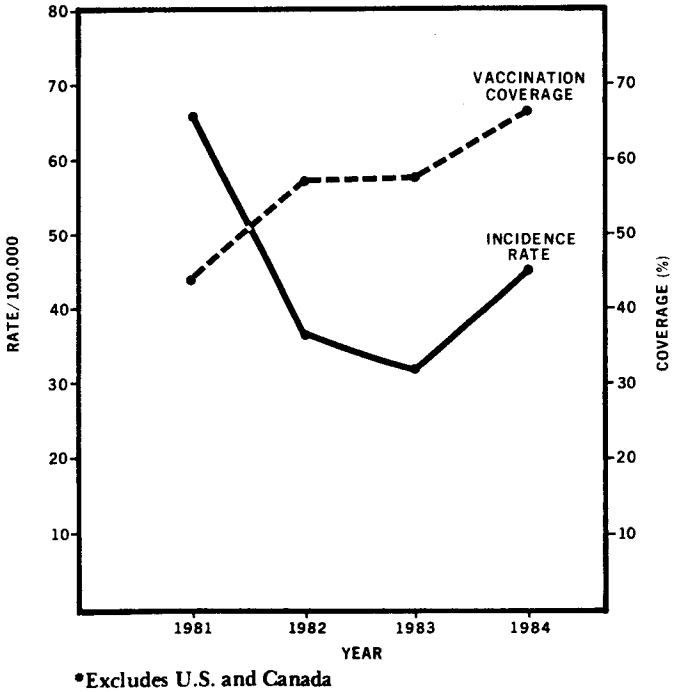
As a result of the notable progress made to date in immunization programs in the Caribbean, the participants concluded that some countries were in a position to offer technical services and advice to one another. Thus, one of the activities planned for the coming year is to arrange visits of EPI Managers from countries with successful programs to others which might be able to adopt similar solutions in areas where they are still having problems.

Measles in the Americas, 1980-1984

Measles continues to be the most frequently reported of the EPI preventable diseases. As shown in Figure 1, despite immunization coverage rates of over 60 percent, there was a resurgence of measles activity in the Region in 1984. The United States also reported an increase in overall incidence in 1984, although more states within the U.S. remained free of transmission in 1984 than during any previous year. Both the United States and Canada are engaged in measles elimination programs, and immunization coverage levels of over 95 percent have been attained in these areas.

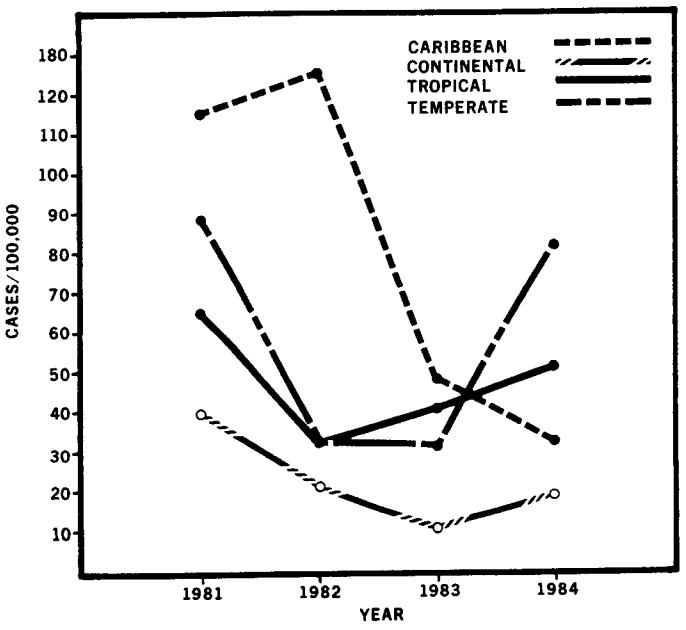
If measles morbidity rates are examined by subregion (Figure 2), it can be seen that rates of disease incidence increased in 1984 in all areas except the Caribbean, with the most marked increase reported by the subregion of temperate South America. Most of the increase here was due to an epidemic of measles which occurred in Argentina in 1984. The number of cases reported by Argentina increased from 7,106 in 1983 to 31,751 in 1984. In the subregion of tropical South America, Brazil reported a marked increase in disease activity, from 58,255 cases reported in 1983 to 78,481 cases in 1984. Other countries in

FIGURE 1. Measles in the Region of the Americas: Incidence and vaccination coverage, 1981-1984*



*Excludes U.S. and Canada

FIGURE 2. Measles incidence in the Americas, by subregion, 1981-1984*



*Excludes U.S. and Canada

Other countries in this subregion experienced milder increases. Four of seven countries in the continental subregion reported increased case counts. In general, 1984 appears to have been a year of intensified measles activity in all areas of the Region except the Caribbean subregion.

PAHO assisted the government of Argentina in the investigation of the 1984 measles outbreak. This outbreak followed two years of very low measles incidence in that country. Initial findings suggested than an increased risk of measles was experienced among all age groups, with the highest death-to-case ratios seen in children under 2 years of age. The increase in disease transmission occurred in the face of rising immunization levels, suggesting that pockets of susceptibles may accumulate over time despite apparently good program efforts. Collecting and analyzing information on age and vaccine status of each case has been crucial to targeting efforts to control such outbreaks.

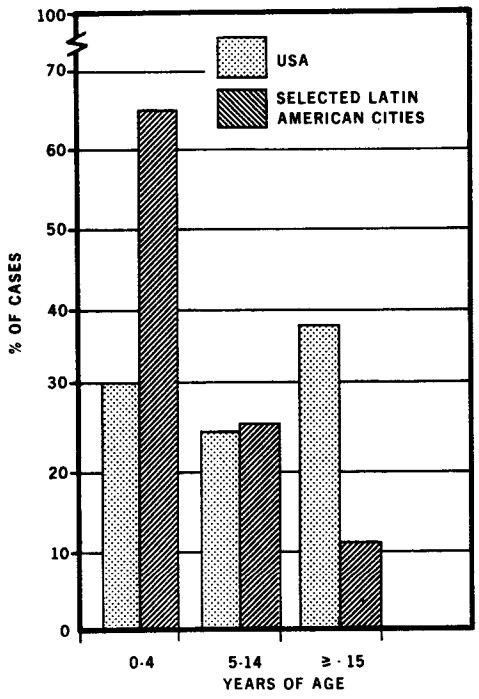
Two examples of successful control efforts should be noted. In Panama, a measles peak was anticipated between November and March of 1984 based on a 2-year epidemic cycle and a prior peak which had occurred between December 1981 and March 1982. Surveillance and immunization activities were intensified and the anticipated increase in disease was not seen. In Rio de Janeiro, a national day of measles vaccination for children under age 5 held in May 1985 apparently averted a disease peak in June, July and August. Hospital admission for measles plummeted by 90 percent during these months. Such mass vaccination campaigns have proven valuable in preventing epidemics of both measles and polio activity in the Region, providing an additional strategy option for EPI programs.

In general, measles is a seasonal disease with increased epidemic activity every two or three years. Because of its high communicability, very high immunization coverage levels are necessary to prevent periodic outbreaks. The experience in North America supports this strategy. As seen in Argentina where coverage is 70 percent, some infants each year will remain susceptible and outbreak activity will occur when a requisite number of susceptibles is generated over time to support viral transmission. Paraguay and Brazil have demonstrated that periodic mass immunization days directed at appropriate age groups can be valuable in assuring that such an accumulation of susceptibles does not occur in the population.

Age of cases of measles is not routinely reported to the Regional Office although it is recommended that countries collect such information for their own use. Age information at the country, programmatic level allows targeting of efforts to age groups particularly at risk. Non-routine surveillance data and information collected during assistance with outbreak investigations suggest measles continues to be primarily a disease of young children for most of the Region.

It appears that the age of highest disease incidence is modified in the face of elimination efforts such as that underway in the United States of America where coverage rates are greater than 95 percent. As incidence declines, sporadic cases begin to be seen among older age groups; this can be seen when the proportion of cases in each age group in the U.S. is compared with that occurring in selected urban centers elsewhere in the Region (Figure 3). Population-based rates in the U.S. showed a rate of 2.6/100,000 for the 0-4 age group and 2.1/100,000 for the 15-19 year-old age group. Rates for all other age groups were far below these rates for this time period. As can be seen for the selected urban centers reporting, measles was rarely seen in the age groups over 15 years; only .02 percent of 5,117 total cases reported occurred in this age group. Population-based rates are not available for these urban centers.

FIGURE 3. Proportion of measles cases in three age groups: the US and six urban centers in selected Latin American cities, 1983



Using current vaccines, it is not recommended to vaccinate earlier than 9 months to prevent measles in infants. A detailed investigation of vaccine efficacy was carried out in Planaltina, Federal District, Brazil, of an outbreak which occurred between January and June of 1983. Because complete age and vaccination status data were kept on cases, it was possible to document a suboptimal vaccine efficacy of 43 percent for children vaccinated prior to 9 months of age. Thus, despite apparently high coverage levels, transmission was maintained. This supports the recommended minimum age of vaccination of 9 months as suggested by the collaborative Latin American study coordinated by PAHO in 1981-1982.

Measles continues to strike children less than one year of age in the Region. Many infants in the Region are contracting measles before they have an opportunity to be protected. This is of particular concern because mortality is inversely related to age. Very young children appear to be particularly affected during epidemic cycles which occur every 2-3 years. It is, therefore, particularly important to completely document age and vaccination status to facilitate appropriate control strategies. Among the selected urban centers, the proportion of measles cases in infants ranged from 13-30 percent with an overall proportion of 20 percent for each of the last 4 years. This, despite the fact that vaccination coverage in 1984 was over 65 percent for infants in the Region (excluding Canada and the United States of America). Other age-specific surveillance reporting suggests this persistence of measles among infants is typical of the Region.

Work is ongoing to develop new vaccines which would allow earlier effective immunization against measles of infants younger than 9 months of age. This area of research continues to be of interest to PAHO as the regional EPI program searches for improved methods of measles control.

Source: Excerpted from *Health Conditions in the Americas*, 1982-1985 (in press).

1986 EPI Revolving Fund Prices

Each year PAHO's EPI Revolving Fund consolidates the estimated vaccine requirements from all participating countries and requests bids from manufacturers who meet the WHO standards for vaccine quality. In spite of high rates of inflation during the seven years of the fund's existence, vaccine prices have remained remarkably low.

The 1986 vaccine contracts have now been placed, and the prices which will be in effect between 1 January and 31 December 1986 are listed below.

Vaccine	Vial size	Price per dose FOB - US$
BCG	10-dose	.074
	20-dose	.039
	50-dose	.024
DPT	10-dose	.023
	20-dose	.0168
DT (adult)	10-dose	.014
	20-dose	.013
DT (pediatric)	10-dose	.015
	20-dose	.013

Vaccine	Vial size	Price per dose FOB - US$
POLIO	10-dose	.028
	20-dose	.0213
	50-dose	.014
TT	10-dose	.0138
	20-dose	.01
MEASLES	1-dose	.37
	10-dose	.067
MEASLES (EDMONSTON)	1-dose	.17

Guidelines for the Retesting of EPI Vaccines

Program managers who suspect vaccine damage due to a cold chain failure should keep in mind that the number of doses involved will determine the feasibility of conducting potency tests. The costs of these tests are constantly increasing, as are the costs of properly shipping the vaccine for retesting.

The World Health Organization has revised its 1984 guidelines on vaccine retesting (see EPI Newsletter VI-2, April 1984). Table 1 shows the minimum number of doses justifying a request for retesting the EPI vaccines, together with other factors involved in the retesting procedure. Compared to the 1984 guidelines, the number of doses of freeze-dried measles vaccine and oral poliomyelitis vaccine required to justify retesting has increased tenfold (from 2,000 to 20,000 doses in each case).

Program managers who suspect a cold chain breakdown should contact their PAHO representative to arrange for potency testing.

Source: WHO document EPI/GEN/85/4, April 1985.

Reported Cases of EPI Diseases

Number of reported cases of measles, poliomyelitis, tetanus, diphtheria and whooping cough, from 1 January 1985 to date of last report, and for same epidemiological period in 1984, by country

Subregion and Country	Report for week ending	Measles		Poliomyelitis§		Tetanus				Diphtheria		Whooping Cough	
						Non-neonatorum		Neonatorum					
		1985	1984	1985	1984	1985	1984	1985	1984	1985	1984	1985	1984
NORTHERN AMERICA													
Canada	2 Nov.	2,189	3,985	—	1	6**	2**	...	...	7	3	1,590	988
United States	28 Dec.	2,704	2,534	5	7	71**	64**	...	...	2	1	3,275	2,187
CARIBBEAN													
Antigua & Barbuda	28 Dec.	1	1	—	—	—	—	1	—	—	—	—	—
Bahamas	28 Dec.	26	36	—	—	6	1	—	—	—	—	—	1
Barbados	30 Nov.	2	4	—	—	—	4	—	—	—	—	13	—
Cuba	2 Nov.	2,567	3,113	—	—	6	11	—	—	—	—	144	76
Dominica	2 Nov.	60	154	—	—	—	—	—	—	—	—	—	1
Dominican Republic	28 Dec.	64	283	—	—	—	1**	—	...	—	10	—	5
Grenada	28 Dec.	7	11	—	—	—	—	—	—	—	—	—	—
Haiti	28 Dec.	...	...	80	63	...	...	...	...	...	...	...	...
Jamaica	2 Nov.	64	236	—	—	2	4	—	2	—	7	1	27
St. Kitts-Nevis	2 Nov.	24	2	—	—	—	1	—	—	—	—	—	—
Saint Lucia	28 Dec.	9	13	—	—	2	3	—	...	—	—	—	—
St. Vincent and the Grenadines	23 Feb.	1	1	—	—	...	—	...	—	...	...	1	—
Trinidad & Tobago	30 Nov.	3,431	3,500	—	—	12	15	—	—	—	—	7	21
CONTINENTAL MID AMERICA													
Belize	28 Dec.	7	4	—	—	...	...	2	...	—	—	36	3
Costa Rica	5 Oct.	1	6	—	—	5	4	—	—	—	—	94	128
El Salvador	30 Nov.	1,397	4,472	6	19	29	57	50	47	4	15	425	483
Guatemala	2 Nov.	7	...	26	6	5	...	...	...	...	...	4	...
Honduras	28 Dec.	5,971	5,028	4	76	17	26	6	20	—	—	241	630
Mexico	5 Oct.	17,180	3,515	144	128	244	278	...	...	4	—	1,807	1,341
Nicaragua	2 Nov.	646	...	—	—	...	...	...	...	—	...	124	...
Panama	2 Nov.	2,474	338	—	—	1	5	6	5	—	—	96	144
TROPICAL SOUTH AMERICA													
Bolivia	7 Sep.	170	1,072	—	—	37	35	1	...	28	23	755	925
Brazil	20 Apr.	17,099	...	138	82	626	...	183	...	794	...	6,561	...
Colombia	28 Dec.	...	...	18	18	...	...	...	...	...	...	...	...
Ecuador	23 Mar.	597	2,863	1	—	15	16	19	14	7	13	191	127
Guyana	7 Sep.	76	187	—	—	7	7	—	...	—	—	1	—
Paraguay	28 Dec.	579	867	3	3	66	93	76	83	26	11	325	775
Peru	30 Nov.	4,430	...	39	129	100	...	34	...	44	...	3,902	...
Suriname	18 May	65	16	—	1	—	2	...	...	—	—	—	—
Venezuela	30 Nov.	20,943	9,041	2	9	125	...	...	...	4	3	3,626	1,412
TEMPERATE SOUTH AMERICA													
Argentina	2 Nov.	7,868	15,605	2	—	67	...	...	...	9	5	3,997	6,876
Chile	28 Dec.	16,790	4,781	—	—	24**	21**	...	...	224	153	633	1,984
Uruguay	28 Dec.	147	237	—	—	9	9	—	—	1	—	430	88

* No 1985 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 52 (ending 28 Dec.).

— No Cases

... Data not available

TABLE 1. The retesting of EPI vaccines

Vaccine	No of doses involved justifying test	No of doses needed for test§	Conditions of transport	Duration of test (minimum)	Time when answer expected (allowing for repeated test)
Measles (freeze dried)	20 000	50	0°C to 8°C	10 days	3 weeks
Poliomyelitis (oral)	20 000	50	0°C to 8°C	7 days	3 weeks
Poliomyelitis (killed)	20 000	50	0°C to 8°C	4 weeks	3 months
BCG (freeze-dried)	20 000	100	0°C to 8°C	4 weeks	2 months
Diphtheria Pertussis Tetanus (DPT)	200 000*	100	0°C to 8°C	4 weeks	3 months
Quadruple Diphtheria Pertussis Tetanus Polio (killed) (DPT-Polio)	20 000*	100	0°C to 8°C	4 weeks	3 months
Diphtheria Tetanus Toxoid (DT)	200 000	100	0°C to 8°C	6 weeks	3 months
Tetanus Toxoid (TT)	50 000	100	0°C to 8°C	6 weeks	3 months

§ *Taken from at least five different locations in the store.*

* *The figure given for DPT is based on the assumption that only the pertussis component would be tested and the figure for DPT-Polio (killed) is based on the assumption that only the polio component would be tested.*

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