

# EPI Newsletter

## Expanded Program on Immunization in the Americas

Volume XIX, Number 4

IMMUNIZE AND PROTECT YOUR CHILDREN

August 1997

### Twenty Years of EPI!

*The Expanded Program on Immunization in the Americas was established at the XXV Meeting of the Directing Council of the Pan American Health Organization in September 1977. The initiative sought to reduce morbidity and mortality due to common vaccine-preventable childhood diseases, by developing and expanding permanent immunization services within primary health care. This issue pays special tribute to all health workers who have been involved in the EPI throughout these 20 years and have made immunization programs one of the most effective health interventions.*

At the time EPI was launched, vaccine technology was available, but there were few formal immunization programs in the countries of the Americas reaching infants and children to prevent diphtheria, pertussis, tetanus, tuberculosis, measles and poliomyelitis. Routine surveillance for these diseases was non-existent, and countries failed to record or report coverage levels. Support from the international community was either lacking or was not specifically directed to disease control programs. Furthermore, the priorities of most multilateral and bilateral agencies were not coordinated either among themselves or with those of the governments in the Region. Private or non-governmental organizations also had limited participation in

vaccine-preventable disease programs. In spite of being one of the easiest health interventions to deliver, immunization was frequently forgotten or given a low priority.

Today, these countries hold the two-time record of being

the first in the world to eradicate smallpox in 1971 and poliomyelitis in 1991. The target set by the World Summit for Children for elimination of neonatal tetanus as a public health problem has also been attained, and the Region is making progress towards the goal of measles eradication by the year 2000. The Americas has developed stronger national



The First Lady of Mexico, Mrs. Nilda P. Velasco de Zedillo administers oral polio vaccine to a child as the Secretary of Health, Dr. Juan Ramón de la Fuente (third from right) looks on.  
Source: Ministry of Health, Mexico

surveillance systems for vaccine-preventable diseases, which are also being used to monitor other emerging and re-emerging diseases.

Immunization coverage for children under 1 year of age for diphtheria, tetanus, pertussis, polio, measles and tuberculosis has reached levels above 80% from 25-30% in 1977 (Figure 1). This figure confirms that the vast majority of children in the Americas are protected against these diseases. There have also been important advances to improve the capacity of countries to assure that children receive safe vaccines.

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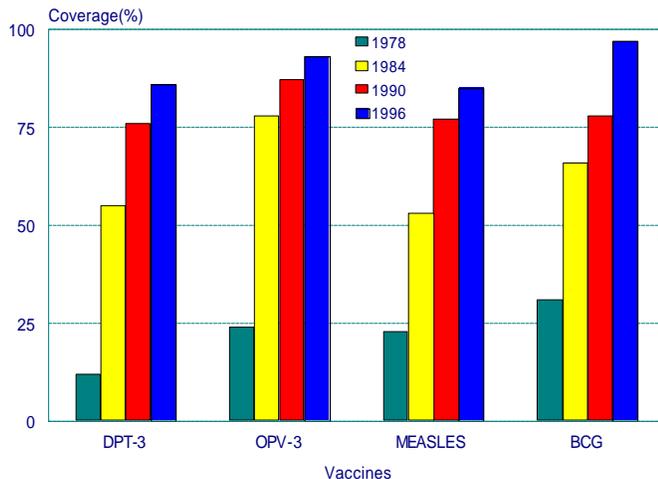
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## The First Years

The major objective of the EPI in the Americas was to create the necessary mechanisms to ensure the effective application on a larger scale of already available knowledge and technology. During the first ten years of the EPI, PAHO's technical cooperation focused on key areas such as training program managers at all levels of the health system; management, which included the development of well-defined national plans of action and emphasized accountability of executing institutions; operational research; the exchange of pertinent information among EPI managers and health officials; and social mobilization to educate the populations and health workers about the benefits of immunization.

**Figure 1**  
**Vaccination coverage in children <1 year of age**  
**Region of the Americas\*: 1978, 1984, 1990 and 1996**



Source: Country Reports  
\*excluding Canada and the United States.

National immunization programs in the Americas quickly grew into highly operational programs that continuously build upon the lessons learned from field work. Special attention was placed on the cold chain and logistical aspects, and on the development of national information systems to support surveillance of vaccine-preventable diseases. Emphasis was later given to the evaluation of immunization programs to determine the obstacles that could impede their effective implementation. This exercise highlighted the critical role of adequate surveillance in helping program managers measure the impact of immunization programs, in terms of disease reduction, and to identify areas of additional support.

In 1983, PAHO published a position paper on immunization delivery that became the blueprint for the use of National Immunization Days (NIDs) in the Americas, and more recently in the world. NIDs sought to rapidly increase vaccine coverage with each of the EPI antigens. A field guide on polio eradication and a manual for laboratory diagnosis of poliovirus were widely distributed throughout the Region. By 1986, over 1,500 health professionals had already been trained in surveillance in 10 countries. Guidelines were issued on immunization policy and on social communication for EPI.

The Regional initiative for the eradication of poliomyelitis from the Western Hemisphere by 1990, launched by PAHO in 1985, was instrumental in strengthening the disease reduction component of the EPI and its ongoing efforts to increase routine immunization coverage. In August of 1991, the last case of polio was reported in Peru. In September of 1994, the Western Hemisphere officially became the first Region to be declared free of indigenous transmission of wild poliovirus.

The polio eradication campaign made unique use of existing strategies, which not only facilitated the attainment of objectives that had been set, but also generated a series of by-products that have enhanced the health sector. A 1995 study conducted by an independent commission, *The Taylor Commission Report*, confirmed the impact of the polio eradication campaign on the health infrastructure in the Americas. This positive impact was particularly noted in the areas of social mobilization, community participation, decentralized decision-making, manpower development, epidemiological surveillance and program management.

The concrete results obtained during the polio eradication years have also provided Ministers of Health with the credibility to earmark sufficient resources for routine immunization programs—one of the major goals of the Pan American Health Organization for the past 20 years. Today, over 80% of the costs associated with these programs are being paid by the countries themselves.

Worldwide, countries are united to eradicate polio by the year 2000, making substantial use of the successful strategies pioneered in the Americas. Once achieved, no child should ever be burdened again with this crippling disease. Financially, global eradication of polio will offer similar benefits to those of smallpox eradication in 1977. In the United States alone, more than US\$ 230 million will be saved annually in polio vaccines and administration costs. Potential worldwide savings have been calculated to exceed US\$ 1.5 billion a year.

### Target 2000: Measles Eradication in the Americas

The world health community is again paying close attention to the new challenge of measles eradication in the Americas by the year 2000. Despite the availability of an effective vaccine, approximately one million children worldwide still die annually from measles and countless others have permanent sequelae from measles infection, the great majority of whom live in developing countries under crowded urban conditions.

Measles transmission has been interrupted in major portions of the Americas. As recently as 1990, there were over 240,000 cases of measles in the Americas. By 1995, the number of confirmed cases had gone down to 6,489 and to 2,109 in 1996. The vaccination strategies recommended by PAHO in the Americas are being considered by several countries in Africa and Asia, where measles continues to be a considerable health burden.

The many health challenges today call for heightened collaboration. Increased international travel is bringing ev-

erybody closer to infectious diseases in distant places, and these diseases pay little attention to borders separating one country from another. In the years to come, PAHO will continue playing a catalytic and critical role in the Americas to ensure the sustainable and equitable delivery of national

immunization programs. The breakthroughs obtained in the Americas in the field of vaccine-preventable diseases throughout the 20<sup>th</sup> century, particularly in the last two decades, have given the world a definite clue of what it takes to make things happen, and what can be achieved in the 21<sup>st</sup> century.

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## New Partners in Immunization

From early on, immunization programs of the Americas have emphasized the importance of program sustainability by stimulating inter-agency coordination and public-private partnerships. In 1982, the findings of a technical and administrative evaluation concluded that vaccination coverage in the Americas would improve considerably with the mobilization of the population through local health committees. In 1983, the Ministry of Health in Bolivia implemented this strategy and encouraged active, popular participation in immunization activities. The improvement in vaccination coverage was substantial, resulting from a better understanding of the benefits of immunization. There was also a higher demand for other health services by the public.

The eradication of polio from the Western Hemisphere was the first example of a successful partnership among governments, non-governmental organizations, the private sector and communities. The network of collaborators formed during the polio initiative was involved in training, funding, surveillance, vaccination, social communications, procurement of vaccines, mobilization of volunteers, as well as in the identification and mobilization of hard-to-reach groups.

In 1989, the endorsement of a famous Brazilian television personality gave a big boost to the country's polio eradication campaign. Venezuela and St. Vincent and the Grenadines issued postage stamps with immunization themes, and Nicaragua printed a scene of a National Immunization Day (NID) on one of their monetary notes. In Panama, a well-known chain of fast-food restaurants provided space for vaccination posts during NIDs. In Peru, El Vaso de Leche, an NGO, identified hard-to-reach mothers to determine whether their children had been vaccinated. Through its PolioPlus campaign, Rotary International became one of PAHO's major partners during the polio eradication years, primarily

in financing the purchase of vaccines and in social mobilization activities for NIDs.

The First Ladies of the Americas have also been critical partners in emphasizing the importance of immunization. In 1992 they offered their support in mobilizing resources from governments and the private sector towards the Regional effort to eliminate neonatal tetanus. During their 1995 meeting in Bolivia, the First Ladies of the Americas outlined a Plan of Action to follow-up efforts to eradicate measles. PAHO has also been actively working with national and subregional Parliaments to establish laws that will finance recurrent costs of immunization programs.

As part of the current measles eradication initiative, countries are strengthening their national disease surveillance systems by identifying and incorporating new reporting sources such as NGOs and community groups. The English-speaking Caribbean countries have taken steps to actively involve private medical providers in the national surveillance



In Haiti, as in the rest of the Hemisphere, the measles eradication initiative requires partnerships at all levels of society.  
Source: A. Waak/PAHO

systems. The Colombian Pediatric Society issued an informative publication on the measles eradication goal, pledging their full support. In Central America, a known soft drink bottling company has collaborated in hanging posters announcing upcoming measles vaccination campaigns in all places where their products are sold. With a grant from an international telecommunication company, the International Red Cross has provided support to promote measles vaccination campaigns in Guatemala.

Immunization programs in the Americas will continue strengthening this broad base of support built during the past 20 years as shown by these few examples. The diversity of actors will require more than ever before intense coordination through existing mechanisms, such as the National Inter-agency Coordinating Committees, to ensure a commonality in approach.

# Western Hemisphere Leading the Way in Disease Eradication

*National immunization programs in the Americas have become powerful examples of what mankind can achieve through the appropriate use of technology, global collaboration and political will for the benefit of all. For the past 20 years, countries of the Western Hemisphere have led the world in conquering infectious diseases that can be prevented through vaccination, ensuring a healthier life for every child.*

## Polio

In September 1985, the XXXI Meeting of PAHO's Directing Council established the goal to eradicate the indigenous transmission of wild poliovirus from all countries of the Americas by 1990. The historic polio eradication campaign received the unanimous support of all countries and by all the major international organizations. The plan to eradicate the transmission of wild poliovirus focused on the acceleration of the Expanded Program on Immunization, with special vaccination strategies targeted to each country's needs. The initiative sought to strengthen national surveillance and outbreak control measures, ensure adequate laboratory support, and training of field epidemiologists and program managers.

## Why Polio?

The impressive reduction in the number of polio cases in the Americas by 1985, due to higher levels of vaccination coverage, paved the way for the proposal to eradicate the indigenous transmission of wild poliovirus in the Western Hemisphere (Figure 1). Other considerations that made polio suitable for regional eradication were the existence of safe, effective and low-cost vaccines, and the fact that there were no animal vectors or reservoirs of the disease. On the other hand, polio was associated with high medical care costs for the acute stage and long-term rehabilitation.

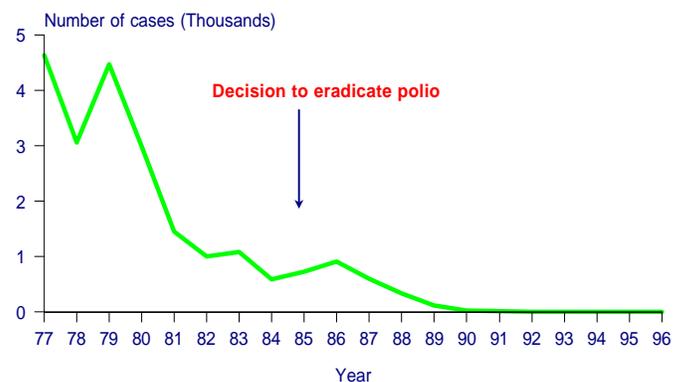
Under the umbrella of a Regional Inter-agency Coordinating Committee, a close-knit group of collaborators was formed, which included the United States Agency for International Development (USAID), the United Nations Children's Fund (UNICEF), Rotary International, the Inter-American Development Bank (IDB) and the Canadian Public Health Association (CPHA). Between 1987-1991, these agencies together with PAHO, mobilized approximately US\$ 110 million toward the eradication campaign. Governments in the Americas contributed over US\$ 440 million.

Countries were classified as either polio-endemic or polio-free based on whether they had reported any polio cases in the preceding three years. Polio-endemic countries were encouraged to hold National Immunization Days, two per year at least four weeks apart, to vaccinate as many children under five years of age as possible, regardless of previous vaccination status. PAHO also encouraged the delivery of multiple antigens during NIDs to supplement and strengthen the delivery of other childhood vaccines. Initially, a reporting network included all health facilities where most cases of acute flaccid paralysis (AFP) occurred: neuro-pediatric clin-

ics, hospitals and rehabilitation centers. They were asked to report weekly, even in the absence of AFP cases (negative reporting). PAHO also organized a Regional network consisting of eight laboratories to support virus isolation, develop analytical approaches for virus characterization and to provide training for laboratory personnel.

Following mass vaccination campaigns with oral polio vaccine (OPV), countries in the Americas experienced a dramatic decrease in the number of polio cases. This success was primarily due to the emphasis on mass vaccination for community protection, rather than on individual immunity. By 1988, fewer than 200 of over 12,000 counties or districts in the polio endemic countries (Brazil, Colombia, Ecuador, El Salvador, Guatemala, Haiti, Mexico, Paraguay, Peru and Venezuela) had circulation of wild poliovirus, versus over 400 in 1987 and over 600 in 1986. This showed that the problem was confined to children under five years of age in few high-risk areas, which were the main source of transmission. These counties still had pockets of unvaccinated people, high-risk areas with low vaccination coverage (urban and peri-urban), and populations who lacked access to health centers. In 1989 and following field trials in Brazil, PAHO recommended an increase in the amount of type III virus used in OPV to ensure the elimination of type III wild virus.

**Figure 1**  
**Number of polio cases**  
**Region of the Americas, 1977-1996**



Source: SVI/PAHO

All endemic countries carried out a special procedure called *mop-up* operations to eradicate the remaining foci of wild polio transmission. *Mop-ups*, implemented in two rounds and one to two months apart, were intensive house-to-house vaccination campaigns designed to reach and immunize children under five years of age who were at high risk of infection. PAHO's decision to carry out these operations between 1989 and 1991, became the turning point for the successful completion of the polio eradication initiative.

By 1991 despite investigations of more than 4,000 stool specimens, wild poliovirus transmission was documented only in Colombia and Peru. In Peru the health infrastructure was weak due to continuous strikes and civil unrest and the

polio eradication program could only rely on *mop-up* operations to immunize children. Peru was also hit by a cholera epidemic that same year, which rapidly spread throughout the entire country and into Ecuador and Colombia. PAHO assisted the government in targeting children in critical need of special vaccination programs through house-to-house *mop-up* campaigns. Vaccinators also provided cholera prevention information to all the homes visited. The last case of polio in the Americas was detected in Peru in August of 1991.

As the number of cases decreased, more reporting units were added. During the last years, the most comprehensive surveillance system that had ever existed in the Americas was put into operation, with the participation of more than 22,000 health units, covering 100% of all counties or districts in the Americas. The development of these local surveillance systems decentralized decision-making and program implementation, and in that way the polio eradication initiative played a significant role in the strengthening of local health infrastructures.

By 1992, as countries were initiating the process of certification of polio eradication, the main challenge was that of assuring the proper collection of two adequate stool specimens within 15 days of the onset of paralysis from every AFP case and from contacts. Without this information uncertainty remained whether poliovirus had been stopped. The International Commission for the Certification of Poliomyelitis Eradication (ICCPE) was formed which defined four basic components that were critical for the purpose of certification: surveillance of acute flaccid paralysis; surveillance of wild poliovirus; active search for AFP cases; and *mop-up* vaccination campaigns in high-risk areas. Countries were considered ready for certification only if they had been free of polio for a period of at least three years in the presence of adequate surveillance. National Commissions were formed in each country to review and oversee the certification process.

In September of 1994, and following an extensive review of surveillance information, key polio surveillance indicators and laboratory results in the entire Region, the ICCPE declared that transmission of wild poliovirus was interrupted in the Americas.

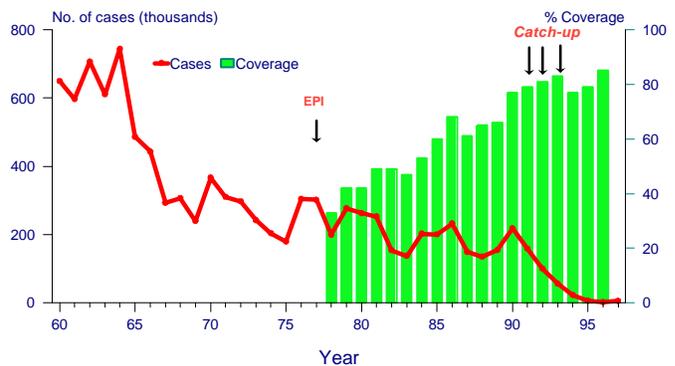
### Measles

The decision to eradicate measles is the best example of the degree of political commitment achieved in the Americas by the polio eradication campaign. Based on the successful experiences in Cuba and the countries of the English-speaking Caribbean in interrupting measles virus circulation, the Ministers of Health of the Americas adopted a resolution during the XXIV Pan American Sanitary Conference in 1994, calling for the eradication of measles transmission from the Western Hemisphere by the year 2000.

Measles transmission has already been interrupted in major geographic areas of the Region. This reduction in cases is a direct result of PAHO's recommended measles vaccination strategy, which includes a one-time *catch-up* vaccination campaign targeting all children 1 to 14 years of age regardless of disease or vaccination history; high coverage

through routine vaccination of children 12 months of age (*keep-up*); and periodic complementary *follow-up* campaigns to reduce the accumulation of susceptible infants and children 1-4 years of age (Figure 2).

**Figure 2**  
Annual measles cases and vaccination coverage\*  
Region of the Americas, 1960-1997\*\*



\* Vaccination coverage in children < 1 year of age.  
\*\* Data as of 26 July 1997.  
Source: PAHO/SVI

PAHO's intensified vaccination strategy is effectively protecting children in the 1-15 year age range. In the Americas, measles outbreaks now occur primarily among older children, adolescents and young adults. These persons were often born too early for routine measles vaccination, but too late to have been exposed to circulating measles virus.

Efforts are underway to further strengthen national information systems, and to provide support for the reporting of measles surveillance data that will allow for better targeting of measles vaccination in high-risk groups. PAHO has developed a comprehensive methodology for evaluating the capacity of national surveillance systems to detect measles cases. Measures have also been taken to improve laboratory testing of suspected cases. The Regional Measles Laboratory Network supported by PAHO is collaborating with national laboratories in conducting trials that will determine the most effective measles confirmation test.

### What is Needed to Eradicate Measles?

Despite the progress achieved in the Americas toward the goal of measles eradication, the virus still circulates freely in other parts of the world and the risk of importations remains. This is a particularly dangerous situation since many children and young adults remain susceptible to measles in almost every country in the Americas. The latest measles outbreaks in the states of São Paulo and Santa Catarina, Brazil and in British Columbia, Canada are a reminder of the ability of measles virus to seek out susceptible individuals in areas which have achieved and maintained high levels of population immunity. Prior to these outbreaks, São Paulo had reported very few measles cases during the previous six years, and Santa Catarina had been free of measles for three years. (*EPI Newsletter*: February, April and June 1997 issues).

The current initiative to eradicate measles will require that countries in the Americas take a pro-active approach by maintaining high levels of immunity in preschool children, and by further enhancing the capacity of the surveillance

system to detect all suspected measles cases. As recommended by PAHO's measles eradication strategy, *follow-up* campaigns should be conducted when the number of susceptible preschool-aged children approaches one birth cohort. Given the changing epidemiology of measles in the Americas, increased efforts will also be needed to assure measles immunity among adolescents, young adults and people working in health care settings.

### Neonatal Tetanus

Cases of neonatal tetanus (NNT) continue to decline as a direct result of PAHO's recommended strategy to vaccinate women of childbearing age (WCBA) with at least two doses

of tetanus toxoid vaccine, especially in high-risk areas for the disease, and ensuring proper investigation of all cases.

NNT is endemic in only 16 countries in the Americas. In 1996, evaluations of NNT elimination activities were carried out in 13 of the 16 endemic countries. The results of these evaluations show great progress toward the elimination of NNT as a public health problem: 51% of the high-risk areas in these countries were considered to have controlled NNT, meaning that they had achieved the WHO goal of less than 1 case of NNT per 1,000 live births per municipality. In these areas, immunization with tetanus toxoid vaccine will now be carried out through routine services.

## EPI Revolving Fund: Quality Vaccines at Low Cost

Operational since 1979, the PAHO/EPI Revolving Fund has been providing participating countries with a reimbursement mechanism for the purchase of vaccines, syringes/needles, and cold chain equipment. Orders from each country are consolidated and procured with money drawn from the Fund—capitalized in US dollars—and each country then reimburses the Fund. Individual country orders are placed at the beginning of each quarter for delivery at the end of the quarter.

After 18 years, the Fund remains an important mechanism to ensure the supply of low cost vaccines to national immunization programs, guaranteeing in this way access to vaccines by a wider sector of the population. This role will become critical as countries in the Americas introduce new vaccines into their regular schedules.

### *Objectives of the EPI Revolving Fund*

- Provide countries with a continuous supply of vaccine that meet PAHO/WHO standards at low prices.
- Enable countries to plan their immunization activities and procure the required supplies of vaccines and syringes, thereby avoiding program disruptions due to lack of vaccines or lack of immediate funds.
- Facilitate the use of local currency for the reimbursement of invoices (acceptance of local currency is determined by conditions in each country.)
- Prepare consolidated vaccine and syringe contracts for suppliers which secure low prices and allow orders to be placed and delivered on short notice.

### How the Fund operates

The EPI Revolving Fund operates on an annual cycle. Vaccine requirements for the following year, broken down by quarters, are established by the Ministry of Health of each participating country during the third quarter of the year and submitted to PAHO headquarters. PAHO consolidates the annual requirements and puts the bids to international tender. Suppliers are informed of the quantities and delivery dates.

On behalf of Member States, PAHO selects the suppliers based on the lowest price and WHO/PAHO quality specifications, taking into account transportation costs and the suppliers' ability to deliver on time. In some cases, two suppliers are selected to allow for a broad range of geographically dispersed suppliers, and to give added security in case of production difficulties.

**Table 1**  
**Capitalization of the EPI Revolving Fund**

Source	Amount Contributed (US\$)
Bahamas	500
Barbados	1,000
Belize	500
Cayman Islands	1,500
Chile	11,253
Cuba	1,000
Dominica	500
Mexico	4,000
The Netherlands	500,000
Panama	5,000
The United States	1,686,000
PAHO	5,046,250
East Leo Club, Port-of-Spain (Trinidad and Tobago)	1,400
<b>TOTAL</b>	<b>7,258,903</b>

Orders are placed to meet scheduled quarterly requirements. PAHO monitors the orders, expedites delivery, arranges freight-forwarding services if needed, and provides shipping information by fax. When an order is placed for a country, the Revolving Fund commits the required funds from its working capital, thus assuring that each order is paid to the supplier. After delivery, PAHO sends an invoice to the country as soon as they confirm receipt of the vaccine and/or syringes in good condition. The invoice for each order in-

cludes cost of goods, freight, insurance and a 3% service charge applied to the cost of the vaccines. The service charge is held in a special reserve account to which PAHO charges losses incurred by the Revolving Fund, such as those from currency transactions. When funds in the reserve account are deemed sufficient, the Organization transfers any excess into the working capital. The Fund is currently capitalized at \$7,258,556. Table 1 shows the donations and sources of funds that were instrumental in the capitalization of the Revolving Fund.

Upon receipt of the invoice(s), a country has 60 days to repay the Fund. If the country's account is in arrears, no further orders will be placed until the debit is cleared. One of the keys to the success of the Fund has been the excellent track record of members in paying their invoices. There have been few countries that have delayed reimbursement, but eventually debits were paid. This has been a very important principle, because the lack of timely reimbursements negatively affects the balance of the working capital. It penalizes countries in good financial standing whose orders cannot be placed due to the slow reimbursement of invoices.

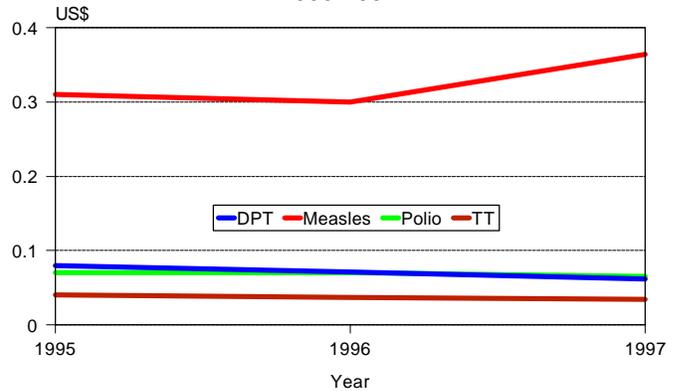
When the Revolving Fund commenced operations in 1979, contracts for DPT, OPV, TT, Measles, and BCG vaccines were established with the WHO/PAHO approved international vaccine suppliers. Today, the Fund has added contracts for DT, Td, Hepatitis B, *Haemophilus influenzae* type b and MMR vaccines. Between 1979 and 1982 the dollar value of vaccines purchased grew from \$2.3 million to \$4.2 million dollars. In 1996, the total value of vaccines purchases amounted to \$7,461,400, and during the first seven months of 1997 the total value was \$15,511,188.

### Benefits

A major benefit of the EPI Revolving Fund is the reduced cost of vaccines. Studies performed by PAHO in the early 1980s showed that manufacturers may charge widely different prices for the same vaccine. Competitive procurement

through the Revolving Fund has helped control vaccine costs. Figure 1 shows the cost change of selected vaccines for the period 1995 to 1997. It is evident from this graph that vaccine prices have remained not only very low, but that there has been very little change in their cost.

**Figure 1**  
**Cost change of selected vaccines**  
**purchased through the EPI Revolving Fund**  
**1995-1997**



Another benefit of the Revolving Fund has been its ability to rapidly secure supplies, as happened during the polio eradication campaign, between 1985-1990. The measles eradication initiative is also benefiting from the timely procurement of measles vaccine for the *catch-up* and *follow-up* campaigns.

There are at least 21 new vaccines in the pipeline with Hepatitis A, Hepatitis B and Hib vaccines already available. The Fund expects to continue playing a critical role in ensuring that countries introduce these vaccines at affordable prices. In view of the increasing scarcity of health resources in the Americas, cost-effective solutions for disease prevention deserve the highest priority. A properly capitalized EPI Revolving Fund is one way to assure economically sustainable vaccine prices.

## Impact of Disease Eradication Programs

- Increased vaccination coverage through routine programs, resulting in significant morbidity and mortality reductions of common vaccine-preventable diseases.
- A reporting network, including approximately 22,000 health institutions throughout the Americas.
- Reduced drop-out rates and missed opportunities to vaccinate.
- Enhanced capacity of the health sector to respond to emerging and re-emerging infectious diseases.
- A cadre of trained epidemiologists with extensive experience in surveillance, disease control and operational research.
- Stimulated inter-agency coordination, as well as private and public sector partnerships.
- Fostered a culture of prevention among politicians, health workers and the public.
- Increased allocation of national resources for regular immunization program costs.

# Introducing New Vaccines

The culture of prevention brought about by the successes of the EPI has stimulated the introduction of new vaccines in the Region. However, the high cost of these new vaccines has led countries to find alternative vaccination strategies according to each country's situation. As a first step, PAHO is emphasizing the need to implement sensitive surveillance systems that can accurately determine disease burden and the cost-benefit of incorporating a new vaccine.

## Current status

The Region of the Americas is currently working on the introduction of the measles-mumps-rubella (MMR) vaccine, as well as vaccines against Hepatitis B, yellow fever and *Haemophilus influenzae* type b (Hib). Many countries in the Americas, including the English-speaking Caribbean, have switched from the single antigen measles vaccine to the MMR vaccine, and several others plan to introduce MMR in the near future. The importance of this vaccine has increased as countries investigate the disease burden of rubella and congenital rubella syndrome (CRS). At the recent regional meeting of the English-speaking Caribbean countries in November 1996, each country performed a preliminary costing exercise, which concluded that mass campaigns with rubella-containing vaccine to eliminate rubella virus and CRS would be highly cost-effective in most Caribbean countries.

The Hepatitis B vaccine was recommended for use in the EPI in 1991 by the International Scientific Committee of the International Symposium on Viral Hepatitis. Currently, 16 countries in the Americas are using this vaccine, half of which are only targeting people and areas at risk, while the others have implemented universal vaccination. Several countries are planning to include Hepatitis B vaccination in their schedules within the next two years. The yellow fever vaccine is used in seven countries where this disease is endemic, and is targeted to populations living in high-risk areas.

Chile, Argentina and Uruguay have conducted epidemiological surveillance studies to determine the incidence of bacterial meningitis caused by Hib. All three have begun routine vaccination, making a total of eight countries in the Region using this vaccine. Studies are being undertaken in the Dominican Republic, El Salvador and Nicaragua to determine the impact of Hib disease and potential vaccination strategies.

## Development of new vaccines

All of the existing vaccine-producing laboratories in Latin America and the Caribbean are publicly owned, and several are currently producing vaccines used in routine immunization programs (DTP, DT, TT, BCG, measles, OPV, and one producer of Hepatitis B by recombinant technology.) These laboratories must strengthen their research and development activities to be able to incorporate new technologies of production.

In the area of vaccine development, and with support from the Canadian International Development Agency (CIDA), PAHO is currently facilitating the collaborative development of a conjugated vaccine against *Streptococcus pneumoniae* by five laboratories in the Americas. This type of effort will help to mitigate the high costs of developing a vaccine, and increase the capacity of these laboratories for research, technological development and vaccine production. It is also consistent with PAHO's objective of strengthening the Region's real and potential capacity for the development of effective vaccines.

Vaccines will continue to be an important public health tool for preventing infant and childhood morbidity and mortality. In the Americas, the commitment of governments will be critical for improving the manufacturing capacities of existing vaccine-producing laboratories, and to allow for a wider range of vaccines to be part of the EPI schedule.

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The *EPI Newsletter* is published every two months, in Spanish and English by the Special Program for Vaccines and Immunization (SVI) of the Pan American Health Organization (PAHO), Regional Office for the Americas of the World Health Organization (WHO). Its purpose is to facilitate the exchange of ideas and information concerning immunization programs in the Region, in order to promote greater knowledge of the problems faced and their possible solutions.

References to commercial products and the publication of signed articles in this *Newsletter* do not constitute endorsement by PAHO/WHO, nor do they necessarily represent the policy of the Organization.

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