EPI Newsletter

Expanded Program on Immunization in the Americas

Volume XV, Number 2 **IMMUNIZE AND PROTECT YOUR CHILDREN** April 1993

Remarks of Dr. Carlyle Guerra de Macedo at the Meeting of the WHO Executive Board

In his address to the WHO Executive Board on 23 January 1993, Dr. Carlyle Guerra de Macedo, PAHO Director and WHO Regional Director for the Americas, noted that poliomyelitis has not yet been eradicated in the Americas, but during the last 17 months no case of the disease has been recorded in the region. This situation is the outcome of eight years of continuous work and the expenditure of nearly US$600 million, more than 80% of which was contributed by the Latin American and Caribbean countries themselves.

The extraordinary mobilization effort demonstrates that, despite poverty and crises, where there is a will and determination it is possible to get things done, Dr. Macedo said. The achievement to date also stems from genuine and effective international coordination. Perhaps the most effective coordination ever seen has taken place in the Americas between USAID, Rotary International, UNICEF, the Inter-American Development Bank and the Canadian International Development Agency (CIDA). These organizations worked together with the Regional Office throughout the years and continue to implement a single program coordinated by the Organization in the Region of the Americas.

Dr. Macedo stressed that vaccination is indispensable but that an adequate system of surveillance, backed up by an effective network of diagnostic laboratories, is equally important. Without surveillance there is a risk that a vaccination campaign might not lead to the desired results. Surveillance is particularly vital in the Region of the Americas to certify that the circulation of wild strains of the virus has been interrupted and the disease eradicated.

Currently, in the countries of Latin America and the Caribbean alone over 21,000 surveillance units report weekly on flaccid paralysis and other illnesses similar to poliomyelitis.

Another lesson to be drawn from the experience in the Region, according to Dr. Macedo, is that the efficiency and effectiveness of efforts increase when there is the courage to decentralize operations. Central coordination to promote and mobilize resources and to ensure standardization is certainly very important, he acknowledged. Operationally, however, the decentralization of responsibility for acting at the local level is the best way to proceed. He stressed that EPIs targeted approach—dubbed "vertical" by some—to guarantee high vaccine coverage rates at the local level is necessary as long as the permanent health service delivery system is not sufficiently strong to ensure that all children have access to immunization services. On the other hand, he said, immunization programs should be carried out in such a way that they contribute to strengthening the permanent health care delivery system.

Dr. Macedo added that it would be dangerous for the American Region to rest on its past successes and be satisfied with the results achieved. Instead, he urged, the Region should keep up the effort until the rest of the world has completed the process of eradication. To this end, the Director offered to share the Region's experience to assist the other regions of the Organization.

In this issue:

Remarks of Dr. Macedo at the Meeting of the WHO Executive Board 1
Poliomyelitis Surveillance 2
Surveillance Criteria 3
Vaccine Adverse Events: Surveillance in Brazil 4
Transportation of Vaccines in Cold Boxes and Thermoses . . 5
Vaccine Coverage Rates, 1991-1992 6
Reported Cases of Selected Diseases 7
In Memoriam: Dr. Albert Sabin 8

He acknowledged the rest of the WHO regions' positive evaluation of the American Region eradication effort, and noted that it contrasts with the skepticism and even criticism the eradication initiative received in 1984.

Dr. Macedo pointed out that the poliomyelitis effort is not the sole focus of the American Region's EPI. It has also made great strides toward eliminating neonatal tetanus and measles. Although the elimination of measles is a complex undertaking, in Cuba and the Caribbean there have been no measles cases since 1989, when campaigns to vaccinate all children under 15 years of age were begun. In Chile and Brazil, the catch-up phase (vaccinating all uninmmunized children under 15) now has been completed. The countries of Central America are currently in the catch-up phase.

Dr. Macedo estimated that it will take roughly two years to achieve the vaccination of all children under 15 in the Region. At that time, he said, the epidemiologic surveillance and expertise gained through the effort should determine whether mass immunization will indeed put an end to that great scourge.

Source: Provisional Summary of the 91st Session of the WHO Executive Board. Document EB91/SR/11.

Poliomyelitis Surveillance

More than 18 months have passed since the last culture-confirmed case of poliomyelitis occurred in Junin, Peru, on 23 August 1991. The challenge before us is to make certain that every case of AFP is identified, reported, and investigated in a timely manner to ensure that wild poliovirus is identified if it is present. To that end, the occurrence of compatible cases—which by definition can neither be confirmed nor discarded—represents a failure of the surveillance system and requires special attention.

From 1990, when the compatible poliomyelitis case classification was first brought into use, to 1992, the number of compatible cases reported yearly declined from 71 to 26, a 63% reduction. Over the same period, the number of high-risk compatible cases, those who were 6 years of age and who had fever at the onset of paralysis, declined from 31 to seven, a 77% reduction.

MAP 1: COMPATIBLE POLIO CASES, AMERICAS*, 1992

MAP 2: COMPATIBLE POLIO CASES, AGE < 6 YEARS AND FEVER AT PARALYSIS ONSET, AMERICAS*, 1992

For 1992, the geographic distribution of the 26 compatible poliomyelitis cases reveals some clustering of cases in Central America and the northern Andean area (Map 1). Of the seven compatible cases with risk factors of age 6 years and the presence of fever at paralysis onset, five are from areas in which transmission of the virus was known to have ocurred in the recent past: Central America, the Atlantic Coast of Colombia, and the northeast of Brazil (Map 2).

Certification of the eradication of poliomyelitis will require that countries that have compatible polio cases, particularly those cases that ocurred in children under 6 years of age who had a fever at the onset of paralysis, document special mop-up immunization campaigns and active case searches in areas where such cases occurred.

Surveillance Indicators Meeting Certification Criteria, Latin America, by Country, 1992

Good surveillance for acute flaccid paralysis is the cornerstone of the poliovirus eradication certification process. AFP surveillance data are now being monitored to guide efforts in the Americas. For surveillance to be considered adequate, the following five criteria must be met:

1) weekly negative notification from at least 80% of all weekly reporting units;

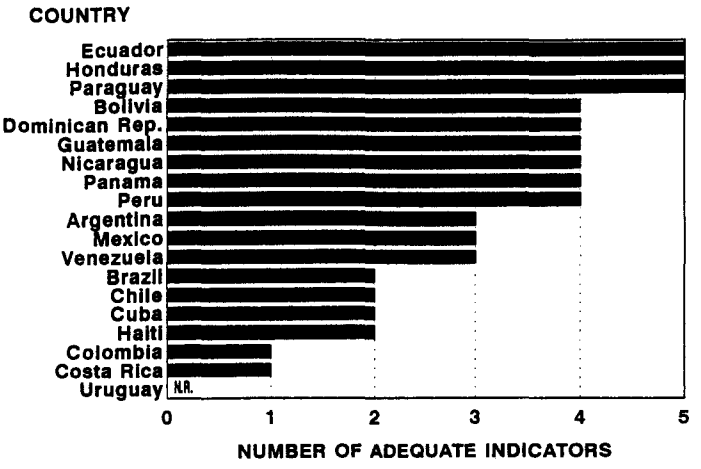
2) detection of a rate of at least 1.0 cases of AFP per 100,000 children under the age of 15;

3) investigation, by a trained epidemiologist, of at least 80% of cases of AFP, within 48 hours of notification;

4) collection of two stool specimens within two weeks of paralysis onset, from at least 80% of AFP cases;

5) for at least 80% of AFP cases, collection of stool samples from at least five contacts.

Efforts to raise AFP surveillance to adequate levels throughout the Americas will be important in reaching the goal of certification. The accompanying chart shows where things stood at the end of 1992 in the American Region.



5 April 1993
N.R. No data received
SOURCE: Polio Eradication Surveillance System/PAHO

Vaccine Adverse Events: Surveillance in Brazil

The National Immunization Program in Brazil (PNI), which was created in 1973, distributed more than 168 million doses of vaccines in 1992, including 64 million doses of measles vaccine, 20 million doses of BCG, 25 million doses of DPT, 50 million doses of OPV, 8 million doses of TT, and 1 million doses of Hepatitis-B, vaccine among others (yellow fever, human rabies vaccine, meningitis AC, etc.). Given that a National Campaign against measles, targeted to vaccinate over 50 million children under the age of 15 was organized in 1992, an especially large number of doses of vaccine was distributed.

Some of the vaccines used in Brazil—such as DPT, measles vaccine (Biken-Cam Moraten strain), and yellow fever vaccine—are produced in the country. Others, such as OPV, are imported in bulk and bottled at local laboratories. Imported Hepatitis-B vaccine is distributed in its original packaging.

The vaccines used by Brazil's EPI are extremely safe, yet some adverse events may occur. Such events following vaccination happen far less frequently than the disease against which the vaccine offers protection; the risk of encephalitis after vaccination with measles vaccine, for example, is 100,000 times lower than after natural infection.

Studies in several countries have confirmed that most adverse events are caused by errors in administration techniques. Surveillance of adverse events is therefore necessary to detect problems with the vaccine used, the possible contamination of solutions, or errors in application techniques.

To that end, in August of 1991, the Brazilian EPI program drafted the framework of a surveillance system for adverse events that stipulates:

--It will be a National Program under the guidance of the National Immunization Program of the National Health Foundation (FNS) of the Ministry of Health in Brasilia.

--A national case investigation form will be put into use at the State, municipal, and local levels. The information collected at the local level will be sent to the state and national levels once the case investigation is completed.

--The national level will contact the local level directly if additional information is required. The national level will

be responsible for the analysis, consolidation, and feedback of the information. It will promote the implementation of the surveillance system in all states at all levels, and will foster the coordination of the case investigation with the EPI, the Epidemiological Surveillance Units, universities and pediatric associations.

--The national level will coordinate the receipt of batches of vaccines so that quality control can be effected at the National Laboratory for Quality Control in Rio de Janeiro.

The Surveillance System for Adverse Events has now been implemented in 6 of the 27 states of Brazil. State information is gathered on disease incidence and coverage rates. It is then transmitted to the national level through Datasus, a computerized database. In 1993 the Datasus system will be put into effect in the other states and improved in those states where it is only partly employed. The experience gained by its use in 1992 pointed to changes that will be made in the case investigation form. A field manual for case investigations will be drafted to facilitate training in the use of the system at all levels.

The preliminary data on adverse events gathered in 1992 demonstrated that they are extremely rare. No serious events were linked for the measles vaccine, despite the fact that more than 50 million doses were administered in 1992. Of the twenty-eight adverse events that were reported in connection to the vaccine, the most frequent was urticaria, followed by abscesses at the vaccination site (see graph).

The most frequent adverse events related to vaccination with DPT were abscesses at the vaccination site and febrile convulsions.

A total of 64 cases were investigated. Other localized reactions were reported frequently as well for both vaccines.

The situation was similar for BCG: 36 percent (7 of a total 19 cases) of all adverse events reported were abscesses at the injection site.

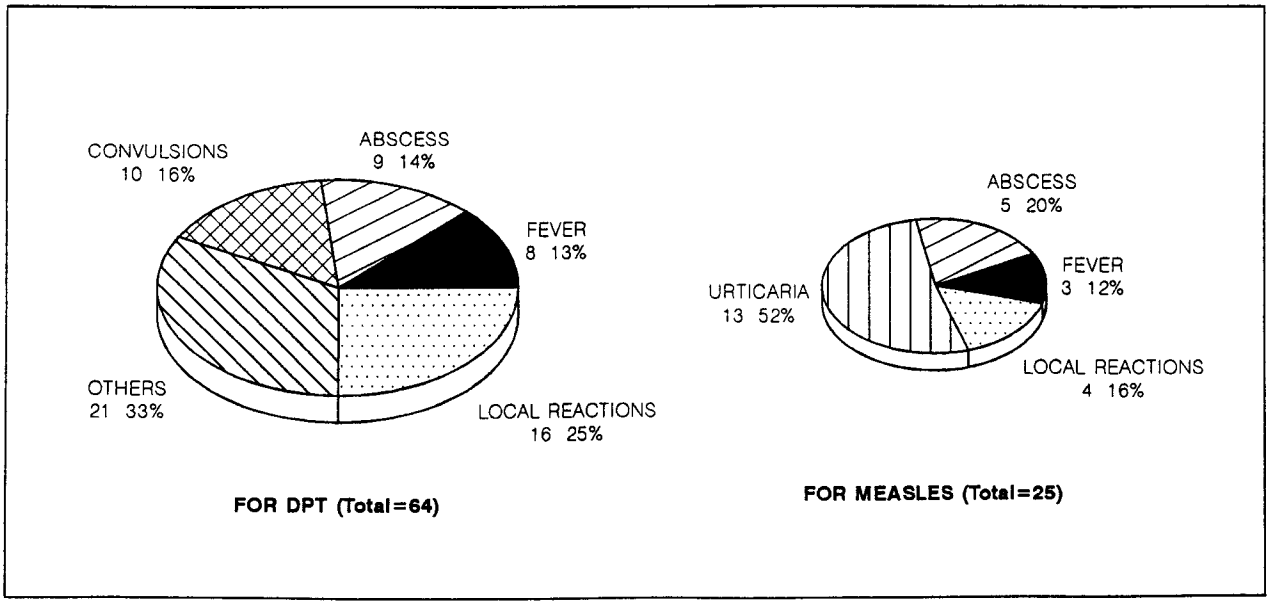
During the measles campaign in April 1992, several states used a high pressure injector to administer millions of doses of vaccine. None of the adverse events reported were associated with this mode of vaccination. It was concluded that localized abscesses at vaccination sites hence were probably due to errors in administration techniques.

During this first phase it was noticed that the case investigation effected by epidemiologists at the national and state levels was highly appreciated by the private physicians who first reported the adverse effects.

Although there remains much to be done before a satisfactory surveillance system—as defined by its completeness, timeliness, and correctness—is in place, these preliminary data are encouraging. In the future, the system will make it possible to better supervise the EPI program and promote routine awareness of the need for maintaining high standards in administration techniques and vaccine quality control.

Source: María Lucía Carnelosa, Chief, EPI Brazil and Bernardus Ganter PAHO/EPI.

POST VACCINATION ADVERSE EVENTS BRAZIL, 6 STATES, 1992



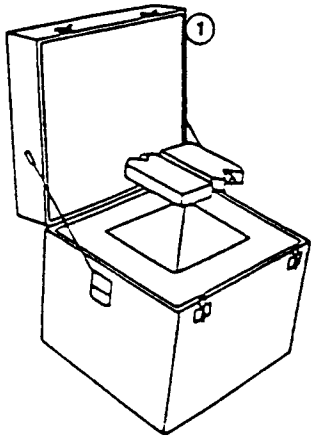
SOURCE:PNI/FNS/MOH BRAZIL

Vaccine Transport in Cold Boxes and Thermoses

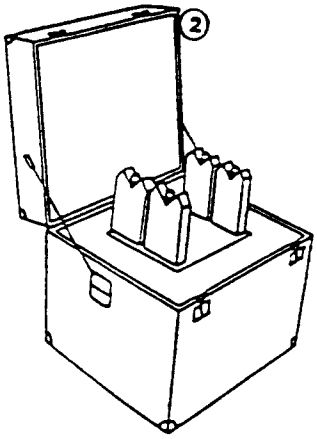
Did you know?

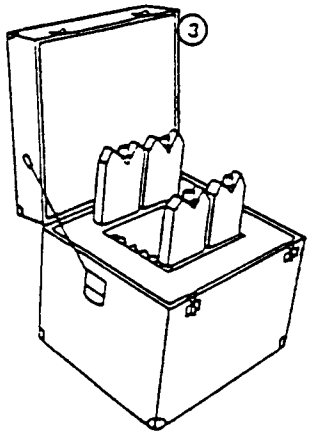
That preparing cold boxes and thermoses to transport vaccines to the field requires that their walls be lined completely with ice packs forming a cube around the vaccine?

Here is what you should do

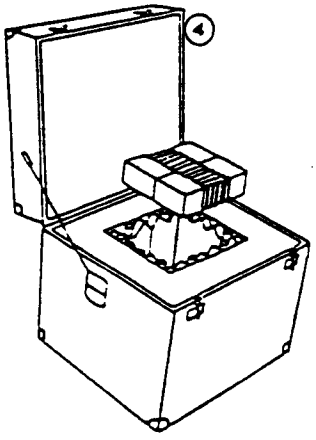


1.
Place ice packs at the bottom of the cold box.

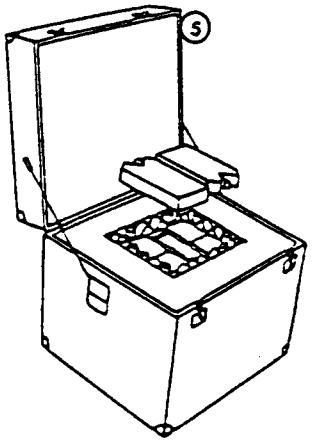




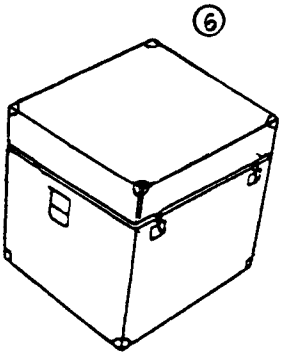
2, 3.
Line the walls of the cold box ice packs.



4.
Place the vaccines in the box in such a way that they are surrounded by the ice packs.



5.
Place more ice packs on top of the vaccines, so that all the walls of the cold box are now lined in ice packs.



6.
Close the lid of the cold box. It is now ready for transport.

- To follow these instructions correctly, you should have enough ice packs on hand to do the job.
- Remember never to freeze DPT, TT y DT vaccines.

Vaccine Coverage Rates in Children Under One Year of Age in the Region of the Americas, 1991-1992*

Subregion and Country	Children <1 Year of Age		DPT (%)		OPV (%)		Measles (%)		BCG (%)	
	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
ANDEAN REGION	2 435 297	2 399 601	71.16	76.32	77.01	80.75	66.20	72.59	83.77	87.38
Bolivia	218 874	190 332	58.33	77.33	66.76	83.49	72.85	79.77	66.69	85.79
Colombia	773 351	812 210	84.22	77.00	90.76	84.00	77.74	74.00	95.17	86.00
Ecuador	327 138	276 201	59.26	83.39	61.77	83.06	53.73	66.31	82.56	113.48
Peru	603 700	610 250	71.04	80.25	74.35	81.73	59.73	80.75	78.52	82.53
Venezuela	512 234	510 608	64.65	66.32	73.50	72.16	61.53	61.31	80.82	81.84
SOUTHERN CONE	1 209 248	1 164 722	83.78	83.08	87.12	85.01	101.02	82.82	100.21	97.56
Argentina	710 511	719 550	80.78	79.70	86.03	82.50	108.84	88.80	104.83	99.00
Chile	300 827	300 827	93.27	90.00	93.35	90.00	95.49	67.00	92.48	93.40
Paraguay	141 723	144 345	78.68	85.49	79.38	87.14	73.50	86.01	93.45	99.08
Uruguay	56 187	...	93.65	...	93.65	...	93.76	...	98.76	...
BRAZIL	4 020 070	3 764 655	73.01	68.76	95.00	96.21	79.62	83.68	81.16	62.68
CENTRAL AMERICA	1 022 522	1 033 215	72.50	73.40	76.33	77.20	62.90	68.09	68.69	72.17
Belize	7 328	7 839	82.61	77.36	80.21	71.10	77.61	72.10	90.67	99.47
Costa Rica	80 296	80 296	89.51	91.43	89.31	91.48	95.78	85.08	80.93	82.94
El Salvador	190 636	191 119	59.87	60.65	60.13	61.67	52.87	55.38	66.13	62.25
Guatemala	346 092	355 718	63.13	64.48	69.26	68.72	49.49	57.82	42.93	55.48
Honduras	184 450	184 564	93.88	92.75	93.31	94.50	85.82	88.73	102.89	91.49
Nicaragua	151 095	151 635	70.93	73.42	83.04	85.80	53.84	72.59	75.12	79.41
Panama	62 625	62 044	81.73	82.48	81.87	83.41	79.69	71.32	86.86	106.16
MEXICO	1 933 394	2 122 711	77.90	91.30	94.60	92.00	91.00	91.50	67.70	84.80
LATIN CARIBBEAN	400 601	231 586	70.34	48.08	78.51	63.40	82.70	75.30	67.70	48.10
Cuba	173 896	...	100.19	...	96.91	...	100.00	...	97.94	...
Dominican Republic	226 705	231 586	47.45	48.09	64.40	63.40	69.43	75.30	44.50	48.10
Haiti	...	...	...	...	...	...	...	...	...	...
ENGLISH CARIBBEAN	130 870	92 828	85.30	84.53	85.69	79.64	79.95	68.41	93.36	86.16
Anguilla	154	168	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Antigua & Barbuda	1 262	...	93.98	...	96.99	...	87.00	...	...	...
Bahamas	6 000	...	92.00	...	91.00	...	93.00	...	...	...
Barbados	4 310	4 192	82.00	90.00	83.99	89.00	92.00	90.00	...	...
Cayman Islands	456	562	96.93	96.98	96.05	96.98	89.91	98.93	80.92	80.07
Dominica	1 619	...	98.02	...	94.01	...	98.02	...	99.01	...
Grenada	2 585	2 429	84.99	90.00	82.01	90.00	96.02	72.99	...	66.98
Guyana	17 000	18 137	81.00	79.00	81.00	87.00	76.00	73.00	89.00	88.00
Jamaica	59 606	59 879	85.00	84.00	85.67	74.00	77.00	63.00	94.37	85.00
Montserrat	173	203	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
St. Kitts/Nevis	976	898	100.00	100.00	100.00	100.00	100.00	99.00	...	...
Saint Lucia	3 652	3 652	96.00	94.00	94.99	94.99	96.99	71.99	...	98.00
St. Vincent	2 457	2 108	98.98	100.00	98.98	100.00	100.00	100.00	100.00	100.00
Suriname	9000	...	75.00	...	72.00	...	84.00	...	...	...
Trinidad & Tobago	20 980	...	82.00	...	81.00	...	93.00	...	...	...
Turks & Caicos	290	300	100.00	76.00	100.00	77.00	100.00	79.00	100.00	100.00
British Virgin Is.	350	300	98.00	100.00	95.14	100.00	84.00	69.00	90.00	100.00
NORTH AMERICA	883	...	82.45	...	82.33	...	84.03	...	...	...
Bermuda	883	...	82.45	...	82.33	...	84.03	...	...	...
Canada	...	...	...	...	...	...	...	...	...	...
United States	...	...	...	...	...	...	...	...	...	...
TOTAL	11 152 885	10 809 318	74.67	76.54	87.76	88.08	79.57	80.86	79.58	77.05

... Data not available.
* Data as of 30 March 1993

Reported Cases of Selected Diseases

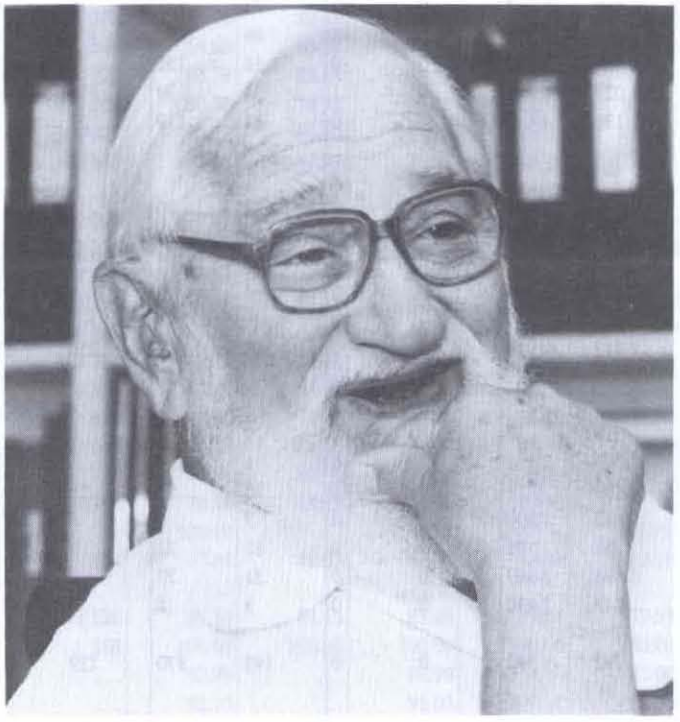
Number of reported cases of measles, poliomyelitis, tetanus, diphtheria, and whooping cough, from 1 January 1992 to date of last report, and the same epidemiological period in 1991, by country.

Subregion and country	Date of last Report	Measles		Poliomyelitis #		Tetanus				Diphtheria		Whooping Cough	
						Non Neonatal		Neonatal					
		1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991
LATIN AMERICA													
Andean Region													
Bolivia	26 Sept.	1 559	2 012	0	0	24	1	20	34	15	4	20	56
Colombia	31 Dec.	4 968	10 391	0	8	86	94	100	141	15	10	596	685
Ecuador	31 Dec.	4 356	1 802	0	0	58	130	72	59	10	3	320	596
Peru	12 Dec.	22 027	1 401	0	1	64	39	113	95	6	3	234	187
Venezuela	31 Dec.	11 130	14 466	0	0	81	119	27	36	1	0	412	919
Southern Cone													
Argentina	8 Aug.	6 626	6 648	0	0	42	26	3	4	2	2	1 113	1 410
Chile	31 Dec.	412	2 080	0	0	15	11	3	0	7	211	234	58
Paraguay	31 Dec.	864	471	0	0	38	88	17	38	5	1	372	112
Uruguay	31 Dec.	187	2 040	0	0	4	5	0	0	0	0	43	47
Brazil	31 Dec.	7 747	41914	0	0	1 365	1 692	250	261	295	477	3 640	7 320
Central America													
Belize	31 Dec.	11	7	0	0	1	1	0	1	0	0	0	4
Costa Rica	22 Aug.	2 220	3 110	0	0	1	1	...	0	0	0	14	14
El Salvador	31 Dec.	509	751	0	0	30	57	25	14	0	0	33	92
Guatemala	31 Dec.	93	209	0	0	7	0	8	7	0	1	147	149
Honduras	31 Dec.	58	95	0	0	13	22	9	18	0	0	425	89
Nicaragua	31 Dec.	2 498	2 867	0	0	21	23	9	11	0	0	346	96
Panama	31 Dec.	843	2 430	0	0	3	8	3	6	0	0	26	104
Mexico	31 Dec.	792	5 392	0	0	192	370	129	145	0	1	136	194
Latin Caribbean													
Cuba	26 Sep.	7	11	0	0	1	1	0	0	0	0	1	0
Dominican Republic	11 Jul.	4 558	1 885	0	0	18	12	2	4	7	8	31	4
Haiti	...	...	...	0	0	...	...	...	...	...	...	...	...
CARIBBEAN													
Antigua & Barbuda	31 Dec.	0	0	0	0	0	0	0	0	0	0	0	0
Bahamas	31 Dec.	0	0	0	0	0	1	0	0	0	0	6	0
Barbados	31 Dec.	0	2	0	0	0	4	0	0	0	0	0	0
Dominica	31 Dec.	0	6	0	0	0	10	0	0	0	0	0	0
Grenada	31 Dec.	0	2	0	0	0	1	0	0	0	0	0	0
Guyana	31 Dec.	0	12	0	0	0	0	0	0	0	0	0	0
Jamaica	31 Dec.	0	308	0	0	3	5	0	0	0	1	0	14
St. Kitts/Nevis	31 Dec.	0	0	0	0	0	0	0	0	0	0	0	0
Saint Lucia	31 Dec.	0	2	0	0	0	1	0	0	0	0	0	0
St. Vincent	31 Dec.	0	0	0	0	0	0	0	0	0	0	0	0
Suriname	31 Dec.	0	10	0	0	0	0	0	0	0	0	0	0
Trinidad & Tobago	31 Dec.	0	118	0	0	8	10	0	0	0	1	4	4
NORTH AMERICA													
Canada	31 Dec.	2 979	6 364	0	0	3	4	0	0	3	2	2 493	2 784
United States	31 Dec.	2 198	9 804	0	0	39	11	0	0	4	1	3 098	2 605

... Data not available.

In Memoriam: Dr. Albert Sabin

Dr. Albert B. Sabin died on 3 March 1993 in Washington, D.C., at the age of 86. Born in Bialystok, Poland, August 26, 1906, he and his family emigrated to the United States when he was 15. There he studied dentistry—a career for which he had family support—for three years, until he "couldn't stand it any longer," according to his own accounts. Drawn instead to medical research, Dr. Sabin put himself through medical school at New York University, graduating in 1931 at the age of 25. That summer a polio epidemic in New York sparked his interest in infectious diseases of the nervous system that would later make him famous around the world.



Dr. Sabin trained in pathology, surgery and internal medicine at Bellevue Hospital, NYC, and spent a year at the Lister Institute of Preventive Medicine in London. In 1985, he joined the research staff of the Rockefeller Institute for Medical Research (Rockefeller University). He dedicated much of his life's work to understanding how key viruses cause human disease and to using their own characteristics to stop their spread.

Dr. Sabin became a scientifically reknowned public figure for his most outstanding achievement: the development of the live-virus oral poliomyelitis vaccine (OPV) that mimics the wild polioviruses even to the point of being (harmlessly) transmissible and thereby also confering immunity to close contacts. He administered the vaccine to himself and members of his family when concern was expressed that it would be less safe than the injectable, killed-virus vaccine developed by his scientific competitor, Dr. Jonas Salk.

His fierce determination to eradicate poliomyelitis from the world went beyond the vaccine itself, however. He also was a major proponent of the mass vaccination campaigns that dramatically increased the number of children who received the vaccine. Known in the U.S. as "Sabin oral Sundays" in which vaccine-laden sugar cubes were distributed, the "national vaccination day" strategy soon became a routine part of this Hemisphere's fight against polio. As a result, coverage levels increased to the point that the transmission of wild poliovirus has virtually been halted. At the time of his death, the American Region had been free of polio for 18 months. Dr. Sabin had hoped to see the disease eradicated worldwide in his lifetime.

Although he is best known for his work in polio research, Dr. Sabin also made major research contributions in other infectious diseases, including sandfly fever, dengue fever, toxoplasmosis, and viral encephalitis. He received numerous prestigious scientific awards for his efforts.

The *EPI Newsletter* is published every two months, in Spanish and English by the Expanded Program on Immunization (EPI) 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.

Editor: Ciro de Quadros
Associate Editor: Ellen Wasserman

ISSN 0251-4729

Expanded Program on Immunization
Maternal and Child Health Program
Pan American Health Organization
525 Twenty-third Street, N.W.
Washington, D.C. 20037
U.S.A.