



EPI Newsletter

Expanded Program on Immunization in the Americas

Volume I, Number 3

IMMUNIZE AND PROTECT YOUR CHILD

September 1979

EPI Revolving Fund

Third Quarter Operations

Third quarter Revolving Fund operations continued to meet the vaccine requirements of the various national EPI programs, including unforeseen emergencies in some countries and territories. A total of 8,955,195 doses valued at US\$ 622,003 were delivered to 13 countries and territories. Of this total, 7,092,670 doses worth \$ 502,721 were planned requirements which were shipped to 13 countries and territories.

The unforeseen orders for the third quarter totaled 1,862,525 doses valued at \$ 119,282. These unanticipated orders, resulting from emergencies and shortages, impede the planned activities and flow of monies of the Revolving Fund. In spite of its insufficient capitalization, the Fund was able to process all orders.

One of the benefits of the Revolving Fund is that countries can receive orderly shipments of vaccines after they have properly planned their needs. One of the basic principles underlying the orderly operation of the Revolving Fund is that the necessary monies can be properly allocated by PAHO for each quarter when countries and territories submit well planned estimates. Unplanned vaccine orders not only disrupt flows of monies and the orderly operation of the Revolving Fund, but also cause countries to incur added administrative and freight charges.

There is still time for all EPI managers and EPI related personnel to ensure that they have adequately planned their needs. Revised estimates for 1980 can be submitted on PAHO form 173 up to one month before the start of each quarter.

A summary of operations for the first three quarters of the Fund's existence shows that a total of 26.9 million doses of vaccine, valued at US\$ 1,620,770, have been ordered through the EPI Revolving Fund for the period January-September 1979. Fourth quarter estimates call for 8.7 million doses, worth US\$ 921,477, to be shipped to 12 countries and territories. Thus, for 1979 over US\$ 2.5 million worth of vaccines -- 35.6 million doses -- will have been procured through the Fund. The estimated total value of vaccines plus shipping charges for all of 1979 will equal over twice the Fund's initial capitalization of US\$ 1,000,000.

Vaccine Orders for 1980

A total of 29 countries and territories have already elected to procure their 1980 EPI vaccines through the Revolving Fund by submitting a completed form PAHO 173. The

participating countries and territories, as of September 1979, are shown in Map No. 1.

Map No. 1 Countries and Territories participating in the EPI Revolving Fund for the purchase of Vaccines, 1980



Contents

	Page
EPI REVOLVING FUND	
- Third Quarter Operations	1
- Vaccine Orders for 1980	1
EPIDEMIOLOGY	
- Measles: An Outbreak in Panama City, 1978 ..	2
- Poliomyelitis: Honduras, 1979	3
- Measles in the Region of the Americas, 1971-1978	4
COLD CHAIN	
- Refrigerator for Health Center Use	5
- Agreement between PAHO/Ministry of Health of Colombia/CIMDER	5
VACCINES	
- EPI Vaccines	6
- Other Vaccines	6
REPORTED CASES OF EPI DISEASES IN THE AMERICAS AND THE CARIBBEAN	7
NEWSBRIEFS	8
SELECTED READINGS	8

A summary of the participating countries and their 1980 vaccine requirements is shown below.

1980 EPI REVOLVING FUND PARTICIPANTS AND THEIR VACCINE REQUIREMENTS
Vaccine orders received (in thousands of doses)

Country	DPT	Polio	Measles	BCG	TT
Anguilla	2.0	2.0	—	—	1.6
Argentina	3,000.0	11,000.0	3,000.0	4,000.0	500.0
Bahamas	50.0	44.0	25.0	7.0	68.0
Barbados	24.0	20.0	8.0	10.0	24.0
Bolivia	940.0	940.0	310.0	—	—
Cayman Islands	1.7	8.7	1.5 (a)	3.7	1.5
Colombia	4,500.0	4,500.0	2,000.0	—	—
Costa Rica	600.0	800.0	68.0	—	400.0
Dominica	6.0	6.0	1.0	0.3	10.0
Dominican Rep.	800.0	400.0	300.0	200.0	250.0
Ecuador	—	1,500.0	500.0	500.0	—
Grenada	12.0	12.0	4.0	6.0	8.0
Guyana	50.0	50.0	30.0	70.0	11.4
Haiti	450.0	—	—	200.0	200.0
Honduras	1,500.0	—	—	420.0	100.0
Panamá	25.0	20.0	92.0	—	16.0
Paraguay	239.6	442.2	57.9	300.0	380.5
Peru	2,500.0	2,500.0	750.0	2,000.0	—
St. Kitts	6.0	16.0	—	2.0	10.0
Suriname	50.0	100.0	1.0	—	—
Uruguay	—	400.0	80.0	—	—
TOTAL DOSES	14,744.9	22,749.0	7,196.9	7,719.0	1,981.0
COST	\$543,098	\$441,801	\$1,880,053	\$338,646 (b)	\$46,082

TOTAL COST OF EPI VACCINES (c) US\$ 3,249,680

3% ADMINISTRATIVE CHARGE AND SHIPPING COSTS US\$ 812,420

TOTAL COST OF VACCINE AND SHIPPING US\$ 4,062,100

(a) Order calls for measles, mumps and rubella and is not included in cost of measles vaccine.

(b) Does not include cost of diluent.

(c) Does not include Haiti.

* The countries and territories of Antigua, Belize, El Salvador, Montserrat, Nicaragua, St. Lucia, St. Vincent, and Turks and Caicos Island had not yet submitted their 1980 EPI vaccine requirements as of September, 1979.

Epidemiology

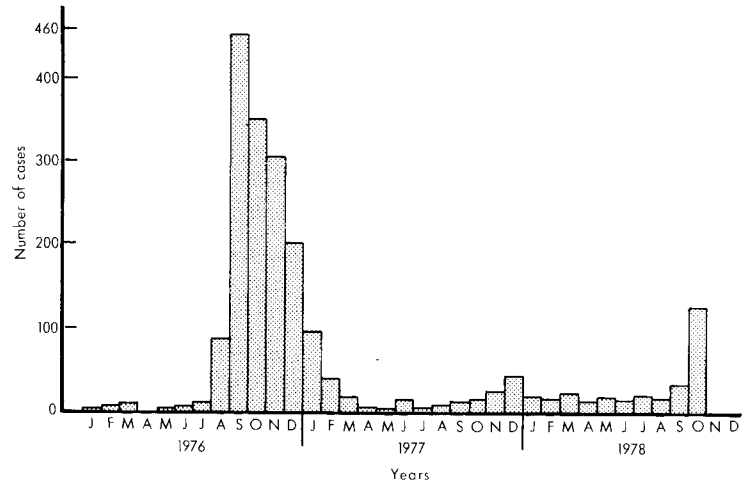
Measles: An Outbreak in Panama City, 1978.

Between August and October 1978 the Office of Epidemiology received reports of 174 cases of measles in the metropolitan area of Panama City.

Active case-finding in the records of the Children's Hospital by the Central Nursing Bureau of the metropolitan area turned up information on 435 cases of measles treated in the emergency ward, most which had not been previously seen in health centers. This showed that the magnitude of the problem was greater than that conveyed by the records of the metropolitan area.

This outbreak occurred barely a year and a half after the end of the previous measles epidemic in this region (Graph 1). In the intervening period (April 1977 to August 1978) there was an average of 15 cases a month. The 32 cases of September are regarded as the onset of the epidemic.

Graph 1. Panama: measles in the metropolitan region
1976-1978



Two deaths were identified during this epidemic, both in the San Miguelito district -- a poor quarter of the city. The age distribution of the cases reported in the metropolitan area between August and October was as follows:

Age	No. of cases	%	Rate per 100,000 inhabitants
Under 1 year	49	28.2	269.3
1-4	80	46.0	112.9
5-9	26	14.9	32.0
10-14	10	5.7	14.1
15 and older	8	4.6	...
Not specified	1	0.6	...
TOTAL	174	100.0	27.5

The sex distribution was even. In regard to age, the highest incidence was among children under one year of age. Forty-eight of the 49 cases in this age group were between 6 and 11 months old.

According to the monthly reports turned in by the health centers, the measles vaccination coverage in the metropolitan area was as follows:

Age	1976	1977	1978 (1st. semester)
Under 1 year	33.4%	26.7%	34.4%
1-4 years	38.1%	59.0%	...

The following vaccination histories were obtained on 105 of the 174 cases reported:

Vaccine	Vaccinated	Not Vaccinated	Unknown	% Vaccinated
Measles	11	56	38	10.5
DPT	28	44(*)	33	26.7
Polio	27	45(**)	33	25.7

(*) Includes 17 who did not receive the full course of inoculations.

(**) Includes 32 who did not receive the full course of inoculations.

These figures show that, for every four of these children, only one had been vaccinated for DPT and polio. This means that, just as these children contracted measles, they are in equal danger of contracting any of the other diseases.

The aforementioned survey showed that 72.2% of the affected children had always lived in the same house. Thus, population movements were not a decisive factor in the low vaccination coverage.

Some of the reasons for these children not having been vaccinated are, according to the survey, the following:

- Failure to show up for appointments even in the wake of household visits.
- Unverifiable reports by mothers that their children had already had measles.
- Refusal by the mother to allow her child to be vaccinated.
- Illness on the day of the appointment.
- Control in a private clinic.
- Control in the Social Security service.
- Lack of vaccine in the health center on the day of the appointment (2 cases).

Following are the salient conclusions and recommendations of the Office of Epidemiology which are now being implemented:

- The need to plan for a permanent vaccination service at each health center as of 1979.
- A public information and community motivation campaign to demonstrate the importance of vaccinating all susceptible children and to emphasize the parents' responsibility for ensuring that this is done.
- The establishment of contacts with authorities, national leaders, government organizations, occupational associations and individuals to enlist their influence on segments of the population so as to improve communication between the community and the health institutions.

Source: Bol. Epid. Panamá, Vol. III, No. 11, Nov. 1978.

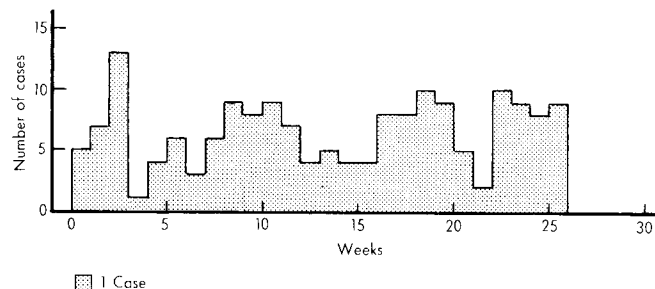
Poliomyelitis: Honduras, 1979

The week of 6 November 1978 was the apparent onset of an outbreak of polio in Honduras, with a total of 40 cases occurring up to the end of 1978 and 173 cases up to the

26th week of 1979. The following is a description of the evolution of the outbreak in 1979 and a discussion of the current situation.

The weekly distribution of the 173 cases reported during the first 26 weeks of 1979 is shown in Graph 1.

Graph 1. Number of poliomyelitis cases for epidemiological weeks 1 - 26 in Honduras - 1979.



Distribution of the cases by age is presented in Table 1.

Table 1

Distribution of poliomyelitis cases in 1979 by age

Age	Total	%
Under 1 year	63	36.46
1 year	55	31.79
2 years	25	14.45
3 years	14	8.08
4 years	5	2.88
5 years and over	11	6.34
Unknown	--	--
Total	173	100.00

The youngest case occurred in a child of two months and the oldest in a ten year old. Seventeen cases occurred in children younger than six months.

The vaccination histories of the 173 cases are summarized in Table 2.

Table 2

Distribution of cases according to vaccination histories

No. of doses of vaccine	No. of cases	%
0	122	71
1	28	16
2	11	6
3	2	1
Unknown	10	6
Total	173	100

Between January and June 1979 a total of 600,000 doses of polio vaccine were distributed to the Health

Regions; provisional data indicate that 122,435 doses were administered, with the age distribution shown in Table 3.

Table 3

Percent distribution of completed polio vaccination (3 doses) by age group. Honduras, January-June 1979.

Age group	N° of persons vaccinated	Estimated population	% vaccinated
Under 1 year	15,083	144,921	10.4 %
1 year	27,874	133,459	20.9 %
2-4 years	57,203	283,584	20.1 %
5 years and over	22,275	2,095,020	1.0 %
Total	122,435	2,656,984	4.6 %

Source: Figures supplied by the Division of Epidemiology and Department of Biostatistics of the Ministry of Health, Honduras.

Editorial Note:

Based on the figures given in Table 3 for the number of persons vaccinated in each age group, it can be calculated that 12.3% (15,083 persons) of the total number of persons who received 3 doses of polio vaccine (122,435) were under 1 year of age; 22.7% (27,874) were between 1 and 2 years of age; 46.8% (57,203) were between 2 and 4 years of age; and 18.2% (22,275) were over 5 years of age. Comparing these figures with those given in Table 1, it can be seen that whereas 68% of the polio cases have occurred in children younger than two, only 35% of the total number of persons vaccinated were under two years of age.

As shown in Table 3, the 15,083 vaccinations given to children under one year old represent little more than 10% of this group -- though it is the age group at highest risk. A change of vaccination strategy would be advisable, with the aim of giving greater priority to the under-two age group, in accordance with the recommendations of the Expanded Program on Immunization in the Americas.

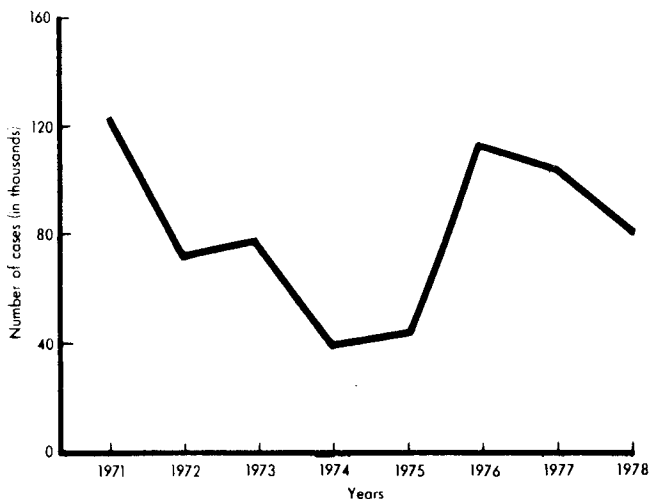
Measles in the Region of the Americas, 1971-1978

In the period 1971-1977, twenty-eight countries in the Region reported to PAHO an annual average of 258,634 cases of measles (see EPI Newsletter No. 1, page 2). In 1978 twenty-nine countries reported 233,408 cases of this disease. These 29 countries have been divided into three groups according to their location.

Graph 1 shows the cases reported between 1971 and 1978 by the countries in group 1: the United States and Canada (North America).

Graph 2 shows the cases reported by group 2 countries: Mexico, Guatemala, Honduras, Panama, Nicaragua, El Salvador, Costa Rica, Jamaica, the Bahamas, Barbados, Cuba, Dominica, the Dominican Republic, Grenada, Haiti and Trinidad and Tobago (Central America and the Caribbean).

Graph 1. Reported cases of measles in the United States and Canada, 1971-1978.



Graph 2. Reported cases of measles in Central America and the Caribbean, 1971-1978.



Graph 3 shows the cases notified by group 3 countries: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Uruguay and Venezuela (South America).

Graph 3. Reported cases of measles in South America, 1971-1978



The decrease in the number of cases reported in 1974 and 1975 followed the large scale introduction of measles vaccine in most of the countries in the Region.

The subsequent rise in the number of measles cases reported in 1976-1977 may have been mostly due to the lack of routine immunization programs integrated within the health delivery systems of many nations.

Figures for 1979, compared with those for the same periods in 1978, show that the number of cases reported in group 1 countries has increased by 21.2%. (The United States, however, showed a decrease of 47.7%.)

Countries of groups 2 and 3 also showed increases, of 167% and 80% respectively, for comparable periods of time in 1978 and 1979.

Cold Chain

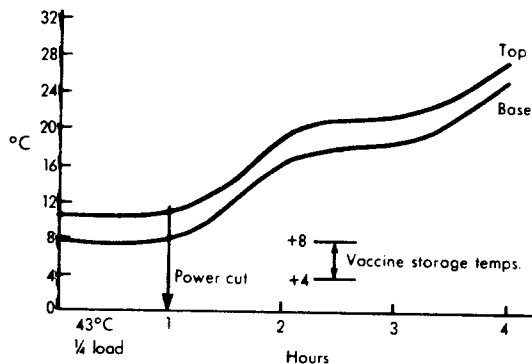
Refrigerator for Health Center Use

PAHO/WHO are continuing their efforts in the research and development of cold chain equipment suitable for use in the Americas, with the latest test results now available on the 20.16 liter refrigerator manufactured in Brazil. This refrigerator, currently being used by the Secretariat of Health of the state of Sao Paulo, is specifically designed for the storage of vaccines in health centers. External dimensions of the refrigerator are 630 mm (width) x 680 mm (height) x 575 mm (depth) and it weighs 39.5 kilos. The refrigerator is equipped with an external thermometer. The inside of the cabinet is made of polyethylene while the outside is constructed of steel plate; polyurethane is used for insulation. Cost of the refrigerator is approximately US\$ 190.

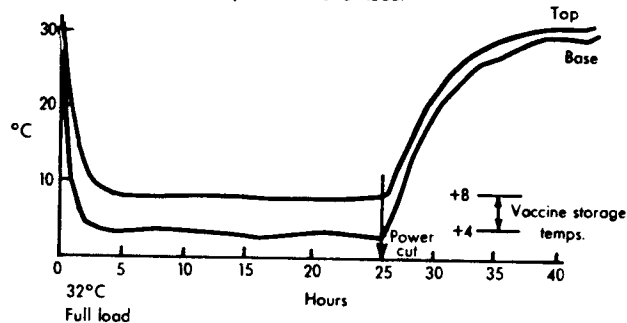
Under PAHO/WHO auspices, the refrigerator has been tested at the Harpenden Rise Laboratories in London in order to evaluate its potential use in other EPI programs. Test results showed that:

"At 43°C, one-quarter loaded, the storage temperatures vary from 11°C at the top to 7°C at the base. At 32°C, one-quarter loaded, the storage temperatures remain respectively within 3°C and 8°C. Temperature rise, when the power is cut, through 10°C from the coolest part of the refrigerator varies from 40 minutes when quarter loaded in 43°C to 2 hours when fully loaded in 32°C. The thermometer provided is accurate to within $\pm 1^\circ\text{C}$." (See Graphs Nos. 1 and 2.)

Graph 1. Temperature rise following power cut at 43°C ambient temperature and ¼ load.



Graph 2. Temperature rise following power cut at 32°C ambient temperature and full load.



These test results have demonstrated that the refrigerator provides a convenient, low-cost method of vaccine storage for peripheral health units provided that the following three conditions are satisfied:

- 1) The supply of electricity is continuous and reliable.
- 2) The top 5 cm. of the cabinet is not loaded with vaccine (as the temperature at the top may be higher than the required storage temperature for vaccines).
- 3) No ice production is required at the health facility where the refrigerator is being used. Since the refrigerator has no ice-making capabilities, it should be used only when all vaccinating is performed in the immediate vicinity of the health facility or where an alternative supply of ice is available.

Agreement between PAHO/Ministry of Health of Colombia/CIMDER

PAHO has signed an agreement with the Ministry of Public Health of Colombia and the Center for Multidisciplinary Studies in Rural Development (Centro de Investigaciones Multidisciplinarias para el Desarrollo Rural - CIMDER) in Cali, Colombia, for the establishment of a regional center for the development and testing of cold chain equipment.

This project aims to ensure that all EPI programs in Latin America, and that of Colombia in particular, make use of cold chain equipment which meets their common needs for vaccine storage and transportation in the Region. In order to assure adequate and efficient attention to these necessities, the agreement establishes the following objectives:

- a) Cooperation between personnel of CIMDER and EPI/Colombia.
- b) Constant attention to the necessities of other EPI programs in Latin America.
- c) Careful evaluation of the possibilities for Latin American industry to supply equipment to EPI.
- d) Rigorous laboratory testing of equipment prior to its large scale manufacture.
- e) Constant evaluation of equipment used in the field on a large scale.

The first phase of the project, in which the present status of cold chain equipment in the Americas will be diagnosed, will begin in October 1979 and is expected to be completed in December 1979.

Vaccines

EPI Vaccines

Instituto Nacional de Virología, Mexico

The Instituto Nacional de Virología (INV) of Mexico, with the support of PAHO/WHO, has developed into an effective Regional Reference Center for Viral Vaccines. A regional course for controllers of viral vaccines was held at the Institute in 1978, and there is also a program under which PAHO fellows receive individual training in vaccine production and control at the INV. Since 1977, sixty-nine lots of vaccines, mostly imported for the EPI program, have been tested at the request of Brazil, Ecuador, Guatemala, and Peru, as well as PAHO/WHO. These are broken down as follows:

Year	Lots of Vaccines Tested		
	Polio	Measles	Total
1977	17	--	17
1978	--	24	24
1979 (Jan-Aug.)	14	14	28
TOTAL	31	38	69

Efforts are being made to cut down delays in reporting the results. Surprisingly, these delays are caused, in part at least, by the complexity of procedures for clearing packages from customs. In order to accelerate the release of vaccine consignments from customs, packages should be clearly marked:

"BIOLOGICALS - NO COMMERCIAL VALUE"

Vaccines for reference should be sent airfreight to the Instituto Nacional de Virología, by a direct flight to Mexico City on a Monday or Tuesday, assuring that the date of arrival of the shipment will not fall on a Mexican holiday. A cable should be sent to the Director of the Reference Laboratory and another cable to the PAHO/WHO Area-II Representative, indicating the contents of the package, name of the airline, flight number, expected date and time of arrival, air waybill number, and the date on which the package was airfreighted. As an additional safeguard, the vaccine should be packed in a polyurethane foam box, 1" thick, with at least three times more coolant (carbon ice or frozen packs) than vaccine.

The address of the Director of the Reference Laboratory is:

Dr. Julio de Mucha Macías, Director
Instituto Nacional de Virología
Carpio 492
Mexico 17, D.F.
Mexico

Telephone: 541-66-30

The PAHO/WHO Area II Representative can be contacted as follows:

Dr. A. Sotelo
Area II Representative
Oficina Sanitaria Panamericana
Apartado Postal 105-34
Homero 418, Colonia Polanco
Mexico 5, D.F.
Mexico

Telephone: 254-2033
Telex : 1774561
Cable : OFSANPAN, Mexico, D.F., Mexico

1980 MEASLES VACCINE ORDERS

Beginning in the first quarter of 1980, all orders submitted for single dose vials of measles vaccine will not include disposable syringes unless otherwise stated by the National EPI Program Managers when submitting their orders.

Other Vaccines

Yellow Fever Vaccine

The Bureau of Biologics of the U.S. Food and Drug Administration has agreed to undertake the external testing of yellow fever vaccine used by national control programs. This arrangement will be particularly useful to Brazil and Colombia, which produce D-17 chick embryo vaccine for most Latin American and Caribbean countries. Information on the operation of this service can be obtained, through the Country Representative, from PAHO, Washington.

Antirabies Vaccines (ARV)

Thirty-nine laboratories in 14 Latin American countries produce ARV for human and/or veterinary use. Of these, 17 laboratories produce ARV for humans; except for El Salvador which manufactures Semple vaccine, all others produce the "Fuenzalida type" of brain vaccine from suckling mice.

The external control is provided by PAHO's Pan American Zoonoses Center (CEPANZO) in Buenos Aires. Countries which have participated more or less regularly in the vaccine control program sponsored by CEPANZO are: Argentina, Brazil, Chile, Colombia, The Dominican Republic, Ecuador, Guatemala, Mexico, Uruguay, and Venezuela.

During the period 1973-1975, eighty-eight vaccine lots were referred for external testing; between 1976 and 1978, the number had more than trebled to 279 lots. During the first period, 19.5% of the vaccines tested did not pass the potency tests, while in the latter period, this figure rose to 24%. Thus it is obvious that an additional effort should be made by the producing laboratories to improve vaccine potency.

There is still room for participation in the CEPANZO-sponsored program by other countries which have not yet taken advantage of this service.

Reported Cases of EPI Diseases in the Americas and the Caribbean

NUMBER OF REPORTED CASES OF MEASLES, POLIOMYELITIS, TETANUS, DIPHTHERIA AND WHOOPING COUGH
FROM 1 JANUARY THROUGH THE LAST PERIOD REPORTED IN 1979
AND FOR THE COMPARABLE PERIOD IN 1978, BY COUNTRY

COUNTRY	DATE OF LAST REPORT	MEASLES		POLIOMIELITIS		TETANUS		DIPHTHERIA		WHOOPING COUGH	
		1979	1978	1979	1978	1979	1978	1979	1978	1979	1978
ARGENTINA	28.IV	1,363	2,520	1	--	79	100	45	139	5,488	5,092
BAHAMAS	25.VIII	1,160	209	--	1	1	1	--	--	--	2
BARBADOS	04.VIII	9	16	--	--	6	8	10	19	1	8
BOLIVIA (a)	16.VI	1,104	338	356	4	58	32	20	14	491	530
BRAZIL	16.VI	13,712	9,804	736	586	865	1,076	1,662	2,137	8,821	10,501
CANADA	11.VIII	21,132	4,498	2	5	...	...	47	99	1,197	1,063
CHILE	04.VIII	14,547	2,302	--	--	...	...	214	319	217	662
COLOMBIA	20.V	9,282	6,760	264	153	...	...	86	66	4,926	5,108
COSTA RICA	11.VIII	2,804	232	--	--	19	26	--	--	133	52
CUBA	26.V	5,078	9,567	--	--	8	17	--	1	88	929
DOMINICA	21.VII	177	--	--	--	1	2	--	--	--	42
DOMINICAN REP. (b)	28.IV	1,618	860	4	8	37	22	68	61	131	147
ECUADOR	07.VII	2,767	359	5	5	38	72	7	14	1,161	1,400
EL SALVADOR	25.VIII	9,124	774	1	6 (c)	62	79 (c)	--	1	608	1,522
GRENADA	18.VIII	1	197	--	--	1	3	--	--	6	--
GUATEMALA	16.VI	2,232	764	17	16	26	20	1	5	609	284
GUYANA	24.III	--	--	--	--	--	...	1	--	...	...
HAITI	04.VIII	244	143	--	--	38	43	3	4	171	117
HONDURAS	30.VI	2,609	3,068	178	11	21	18	1	-	1,191	620
JAMAICA	...	...	...	...	...	...	...	...	...	...	...
MEXICO	11.VIII	22,420	2,216	248	393	...	256	...	7	2,829	2,331
NICARAGUA	2.VI	46	70	--	1	--	8	--	--	158	251
PANAMA	28.VII	3,306	601	--	--	16	16	--	--	265	38
PARAGUAY	04.VIII	385	313	10	31	101	96	1	2	429	337
PERU	21.VII	1,108	1,041 (d)	35	38	82	54 (d)	44	43	6,032	1,375 (d)
SURINAME	07.IV	...	...	--	--	...	...	1	2	...	...
TRINIDAD & TOBAGO	14.VII	316	667	--	--	17	9	--	--	19	8
U.S.A.	08.IX	12,083	22,904	23 *	3	47	58	62	57	932	1,338
URUGUAY	31.VII	902	332	1	--	7	15	--	--	148	818
VENEZUELA	25.VIII	15,824	10,261	24	9	...	...	1	22	1,053	3,124

(a) Figures for 1978 up to 21 April

(b) Figures for 1978 up to 31 March

(c) Figures for 1978 up to 28 July

(d) Figures for 1978 up to 2 June

-- No cases

... Figures not available

* 20 paralytic cases; 3 non-paralytic cases

Newsbriefs

NETHERLANDS CONTRIBUTION TO EPI REVOLVING FUND

The Government of the Netherlands has announced it will contribute to WHO the sum of US\$ 75,000 for visual educational materials in the area of cold chain management; \$ 50,000 for the production of an animated film describing the concept and benefits of immunization; and \$ 500,000 for the EPI Revolving Fund for the Purchase of Vaccines for the Americas.

The \$ 500,000 Dutch donation to the EPI Revolving Fund in the Americas is being channelled through the WHO Voluntary Fund for Health Promotion. This contribution, coupled with the allocation of \$ 800,000 from the PAHO Working Capital Fund which is expected to be approved by the XXVI Meeting of the PAHO Directing Council this September-October 1979, will bring the total capitalization of the Fund to \$ 2,300,000.

These new funds will significantly enhance the capability of the Fund to serve the vaccine needs of member countries and territories -- though another \$ 1,700,000 is still being sought to reach the \$4,000,000 capitalization estimated to be necessary for its smooth operation.

NEW PARTICIPANT IN EPI REVOLVING FUND: Suriname

The Government of Suriname has advised PAHO of its decision to participate in the EPI Revolving Fund for the purchase of vaccines beginning in 1980. This brings to a total of 29 the number of countries and territories in the Region of the Americas which will be taking advantage of the Fund's procurement mechanism in order to meet their 1980 EPI vaccine requirements.

INTERNATIONAL COURSE ON VIRAL VACCINES: Argentina, 12-30 November 1979

In the context of PAHO's program for the training of vaccine controllers, an International Course on Tissue Culture Titration of Live Viral Vaccines will be held by WHO/PAHO at the Instituto Nacional de Microbiología "Carlos Malbrán," Buenos Aires, Argentina, 12-30 November, 1979. The language will be Spanish/English and Governments have been invited to send their nominations. To be eligible for participation in the course the candidate must be a University graduate with at least six months experience in virology who is working in a program related to vaccine control. The closing date for sending in nominations was 15 September, but late requests will be considered if places are still available.

The EPI Newsletter is a periodic publication prepared by the Expanded Program on Immunization (EPI) of the Pan American Health Organization, Regional Office for the Americas of WHO. Its purpose is to create a flow of ideas and information concerning immunization programs in the Region in order to facilitate a sharing of problems and 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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Selected Readings

The following articles on EPI diseases and vaccines have been selected for their possible interest to newsletter readers. Copies of these articles may be obtained, at no cost, upon written request to the editor.

1. "Measles Antibody Prevalence in Diverse Populations". Black, Francis L.
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