EPI Newsletter

Expanded Program on Immunization in the Americas

Volume IV, Number 2 | IMMUNIZE AND PROTECT YOUR CHILD | April 1982

EPI Five-Point Action Program for the 80s

A five-point action program for the EPI was developed by the EPI Global Advisory Group in October 1981, and approved by the WHO Executive Board at its meeting in January 1982. It will be submitted to the Thirty-fifth World Health Assembly which takes place in Geneva from 3 to 14 May.

The program is intended to guide national and international efforts for the remainder of the decade towards achieving the EPI goal of providing immunization services for all children of the world by 1990. The text of the proposed action program is quoted below.

1. **Promote EPI within the context of primary health care:**
   - develop mechanisms to enable the community to participate as an active partner in program planning, implementation and evaluation, providing the technical and logistical resources to support these functions; and
   - deliver immunization services with other health services, particularly those directed towards mothers and children, so that they are mutually supportive.
2. **Invest adequate human resources in EPI:** Lack of these resources in general and lack of management skills in particular represent the program's most severe constraints. Capable senior and middle-level managers must be designated and given authority and responsibility to carry out their tasks. They require training, not only to be effective with respect to EPI, but also to contribute to the understanding and strengthening of the primary health care approach. Reasons for low motivation and performance in the areas of field supervision and management need to be identified in order that appropriate measures can be taken to encourage managers to visit, train, motivate and monitor the performance of those for whom they are responsible.
3. **Invest adequate financial resources in EPI:** For the program to expand to reach its targets, current levels of investment in EPI, estimated now at US$72 million per year, must be doubled by 1983 and doubled again by 1990 when a total of some US$300 million (at 1980 value) will be required annually. Over two-thirds of these amounts must come from within the developing countries themselves, the remaining one-third from the international community.
4. **Ensure that programs are continuously evaluated and adapted so as to achieve high immunization coverage and maximum reduction in target-disease deaths and cases:** Such adaptation depends on the development of adequate information and evaluation systems. By the end of 1985 at the latest, each country should be able to:
   - estimate reliably immunization coverage of children by the age of 12 months with vaccines included in the national program;
   - obtain timely and representative reports on the incidence of EPI target diseases included within the national program; and
   - obtain information on the quality of vaccine so that it is known that the vaccines employed for EPI meet WHO requirements and are potent at the time of use.

   In addition, countries should promote the use of periodic program reviews by multidisciplinary teams comprised of national and outside staff to ensure that operational problems are identified and that a wide range of experience is reflected in the recommendations which are made.
5. **Pursue research efforts as part of program operations:** The objectives should be to improve the effectiveness of immunization services while reducing their costs and to ensure the adequate supply and quality of vaccines. Specific concerns include the development of

Contents

approaches for delivering services which engage the full support of the community, the improvement of methods and materials relating to sterilization and the cold chain, the acquisition of additional knowledge concerning the epidemiology of the target diseases, further development of appropriate management information systems, and further improvement in the production and quality control of vaccines which are safe, effective and stable.

Source: WHO document A35/9, 25 March 1982.

EPI Evaluation in Ecuador

A multidisciplinary evaluation of Ecuador's EPI was carried out between 28 September and 8 October 1981. The evaluation team was made up of 11 persons from Ecuador's Ministry of Public Health, four PAHO/WHO officials, and one observer from Colombia.

At the time of the evaluation, the EPI had been implemented in 14 of the country's 20 provinces. Major achievements in EPI implementation included: improvement of the cold chain in all provinces, improved vaccine delivery, organization of local EPI courses which trained over 1,200 health workers, increases in personnel involved in EPI activities to a number sufficient to reach the population, and increases in the budget available for program activities.

The primary objective of the EPI evaluation in Ecuador was to identify the problems that might be impeding the progress of the program and propose feasible solutions. The evaluation entailed four different activities: a study of current EPI operations at national, provincial, and local levels; identification of program achievements and obstacles; formulation of recommendations; and design of an activity timetable to implement the recommendations.

These activities were designed to measure the progress being made and determine what actions are necessary to assure that objectives and targets are being reached. A summary of the evaluation findings is given below.

Achievements

A technical and administrative system has been set up at the central and provincial levels to conduct the operations of the Expanded Program on Immunization. The EPI has been implemented in 14 of the country's 20 provinces.

Programming: Efforts have been made to provide a local programming tool at the operational level to permit effective development of vaccination activities.

Plans have been made for nursing staff and health inspectors to carry out the vaccination activities.

Norms: Norms have been drawn up and distributed to ensure the use of uniform vaccination methods, techniques and procedures. The norms are disseminated in a manual and six self-instructional modules.

Resources: The health units have the human resources needed to carry out vaccination activities.

The cold chain has improved. There is a National Vaccine Bank, which has satisfactory equipment. Most of the provinces have provincial vaccine banks. The EPI operational units in the provinces have been provided with basic cold chain equipment. It may therefore be said that there has been improvement at all levels in the receipt, storage, distribution and administration of vaccines.

Regular, adequate supplies of the various vaccines used in the program and of the items needed to administer them, have been provided to most of the country's operational units.

The Ministry of Public Health has allocated a specific budget for nationwide development of the program.

Training: EPI Workshops have been conducted in 10 of the 14 provinces in the program, following methods based on the self-instructional modules. Training was given to 1,273 people between September 1980 and September 1981.

Promotion: Promotional work has been done at the operational level and in households using educational materials prepared by the provinces. Radio and television are used on occasion.

Supervision: There is supervision at the central level, and in some of the provinces.

Epidemiologic information and surveillance: There is unified machinery for reporting vaccination activities and epidemiologic surveillance at all levels.

Coordination: Initial contacts have been made with the Maternal and Child Health, Nutrition, Statistics, Planning and Diarrheal Disease Control Programs for the integrated delivery of services at the operational level.

Administration: At the central level there is a group responsible for program administration and decentralizing the activities to the provinces, each of which has an epidemiologist in charge of the program.

Vaccination strategies: Combined use of the house-to-house, assembled group and spontaneous demand strategies has made possible a wider vaccination coverage than during the years before the EPI was launched in Ecuador, according to information provided by the National Statistics Division of the Ministry of Public Health as corroborated by evaluations based on cluster sampling in ten provinces.

Problems

The Program's target population groups are children under 5 years of age and pregnant women, but insufficient priority is given to the subgroup of infants under 1 year. The differences between the coverages of the first and third doses of DPT and polio vaccines are 44.9% and 38.5%, respectively.

Vaccination of pregnant women with tetanus toxoid is only just beginning, and this is reflected in the high incidence of neonatal tetanus.

It was found that some operational units were turning away spontaneous demand for vaccination, either because they believed that the vaccine would be wasted, or because the requests were not made during working hours.

Vaccination coverage has been low over the last eight years. As of July 1981, the proportion of infants under 1 year receiving a third dose of DPT and polio vaccine was 15%.

Programming: The lack of unified machinery for comprehensive health planning at the national level prevents the proper use of human resources.

There is no information at the local level on the population groups to be served, which means that programming and evaluation activities cannot be carried out.

Norms: The current norms have not been updated to meet certain international recommendations.

No norms have been drawn up as part of programs related to immunization.

Existing norms have been insufficiently disseminated nationwide.

Private doctors are unaware of program norms, and this hampers the normal development and application of the norms.

Resources: The existing human resources are poorly distributed, which results in their being under-utilized.

Substantial absenteeism has been noted in the health subcenters, particularly among the medical staff and nursing auxiliaries: this has caused serious irregularities in operations.

There continue to be major limitations in the provision of equipment and supplies: some health units do not have refrigerators, thermoses, cold boxes, or enough syringes for vaccine administration. Some provincial vaccine banks do not have enough freezers.

Equipment is sometimes not distributed on the basis of actual need: for example, there are operational units that do not have a source of electricity but have been provided with electric refrigerators.

The program is hampered by serious administrative problems at the central level in the procedures for obtaining biologicals, equipment and supplies.

The financial resources budgeted for the program are insufficient.

Training: Training has been insufficient for staff at the central, provincial and local levels. In addition, most staff doctors and rural physicians are unaware of technical and administrative program norms.

In-service training is sporadic.

Promotion: Promotional work has been insufficient. The operational staff make little effort to reach out into the community, and health educators take little part.

Supervision: There is no comprehensive supervisory machinery at the national level. Central-level supervision is insufficient, and even more so at the provincial level, largely due to the lack of transportation and travel money.

Information and epidemiologic surveillance: Knowledge of epidemiologic surveillance and the handling and analysis of vaccination records is weak at the provincial and local levels, with the result that there is substantial under-reporting of vaccination activities. The vaccination reports are not forwarded on time, nor are they complete.

The national epidemiologic surveillance system shows major gaps and serious irregularities. For this reason, it becomes difficult to obtain timely, reliable data on the behavior of the target diseases.

There is no adequate epidemiologic bulletin that would serve the various levels of care as a source of feedback and up-to-date, timely education.

Coordination: It is recognized that there is a lack of intra- and inter-institutional integration with, for example, the Social Security system (IESS), Armed Forces and Medical Societies, with the result that activities are performed independently in each institution, and there is duplication of effort and disorientation at the operational level.

Administration: In some provinces, the epidemiologists responsible for the program are employed on a part-time basis; there is also some turnover among the doctors. The evaluation team found a certain lack of motivation in some of these doctors, and insufficient preparation in the area of EPI.

Recommendations

Efforts must be made to expand vaccination coverage of the program's target groups, i.e., children under 5 and pregnant women, with appropriate priority to the subgroup of infants under 1 year.

Research must be done to determine the reasons for the difference between the coverages of the first and third doses of DPT and polio vaccines.

It should be recommended to all levels of care that the operational units should on no account turn away spontaneous demand.

Programming: There should be a unified programming system that would enable the operational personnel to participate actively in comprehensive care planning.

All levels of care should have accurate data on the target population.

Norms: The central level should revise existing norms to bring them into line with international recommendations, and subsequently circulate them at all levels.

Other public and private health institutions should participate in drafting these norms in order to have uniform criteria and thus assure compliance with the norms.

Resources: Recommend to the appropriate levels that they redistribute human resources on the basis of the priorities of the services.

Ensure that the necessary budgetary funds are available for effective implementation of the cold chain, and regular, timely provision of vaccines.

Set up efficient machinery for timely, rapid purchasing of supplies, equipment and vaccines for the program.

Redistribute existing resources in the local units according to actual needs.

Attempt to secure a progressive increase in the budget allocated to the EPI.

Training: Increase the number of EPI training workshops for all operational personnel, particularly involving the existing medical staff at the various levels of health.

Reinforce in-service training by means of periodic supervision.

Promotion: Secure greater participation by health educators in the promotion and production of educational materials.

Motivate operational level personnel to conduct permanent community relations work.

Develop greater community participation in vaccination activities.

Supervision: A comprehensive supervisory tool should be developed to enable all areas of the program to be evaluated, and thus make better use of existing resources.

A schedule for supervision should be developed for all health levels.

Supervisory activities should be coordinated with other divisions related to the program, in order to make rational use of existing resources.

Transportation and travel funds should be made available at the provincial level, so that supervision can be exercised regularly and on schedule.

Epidemiologic information and surveillance system: Publicize the norms in the National Statistics Division by providing the staff of the health units with adequate instruction in order to improve the reporting and analysis of statistical and epidemiologic surveillance reports.

Have those reports forwarded on schedule so that decisions for corrective action at the various levels of care may be taken.

Recommend that the National Epidemiology Bureau work through its respective department to reorganize the national epidemiologic surveillance system. The activities to be considered in this reorganization will include planning regular publication of the national epidemiologic bulletin, which should contain articles on surveys conducted and disease behavior, and serve as an educational tool. The bulletin should be circulated throughout the country.

Recommend to the provincial levels that they conduct periodic evaluations of vaccination coverage by the cluster sampling technique.

Coordination: Establish a permanent system of intra-and inter-institutional coordination, through periodic meetings, that will permit real integration of health programs.

Administration: Request that epidemiologists in charge of the program be appointed on a full-time basis.

A copy of the complete report on Ecuador's EPI evaluation may be obtained from Dr. Humberto Baquero, Administrador Nacional del PAI, División Nacional de Epidemiología, Sodiro 202, Quito, Ecuador.

Choosing a Refrigerator or Freezer for the EPI Cold Chain

In choosing a refrigerator or freezer for vaccine storage, adherence to some simple guidelines will help the user to identify suitable equipment. Figure 1 outlines the basic steps to be followed in determining what type of equipment is most appropriate for a particular area.

Storage capacity and ice-making requirements

The quantity of vaccine to be stored should be calculated to determine the required vaccine-storage capacity. The amounts of ice or ice packs needed each day for cold boxes and carriers must also be considered to determine ice-making performance requirements.

Refrigerator performance

In order to select a refrigerator with appropriate performance characteristics (that is, the capacity to maintain vaccine-storage temperatures between +4° and +8°C), the user should know the day and night-time ambient temperatures in which the refrigerator will be operating. If average daytime temperatures of +43°C are balanced by night-time temperatures as low as +15°C, a wider range of refrigerators is available than for an area with continuous temperatures of around +43°C.

Power source and cold life

If electricity supplies are not available bottled gas or kerosene may be used. If local kerosene is not of high quality, then the user should select a high-performance refrigerator. Furthermore, should the local power source or availability of gas or kerosene be unreliable, it is wise to consider equipment with a long cold life, and arrange for standby power or a second fuel source.

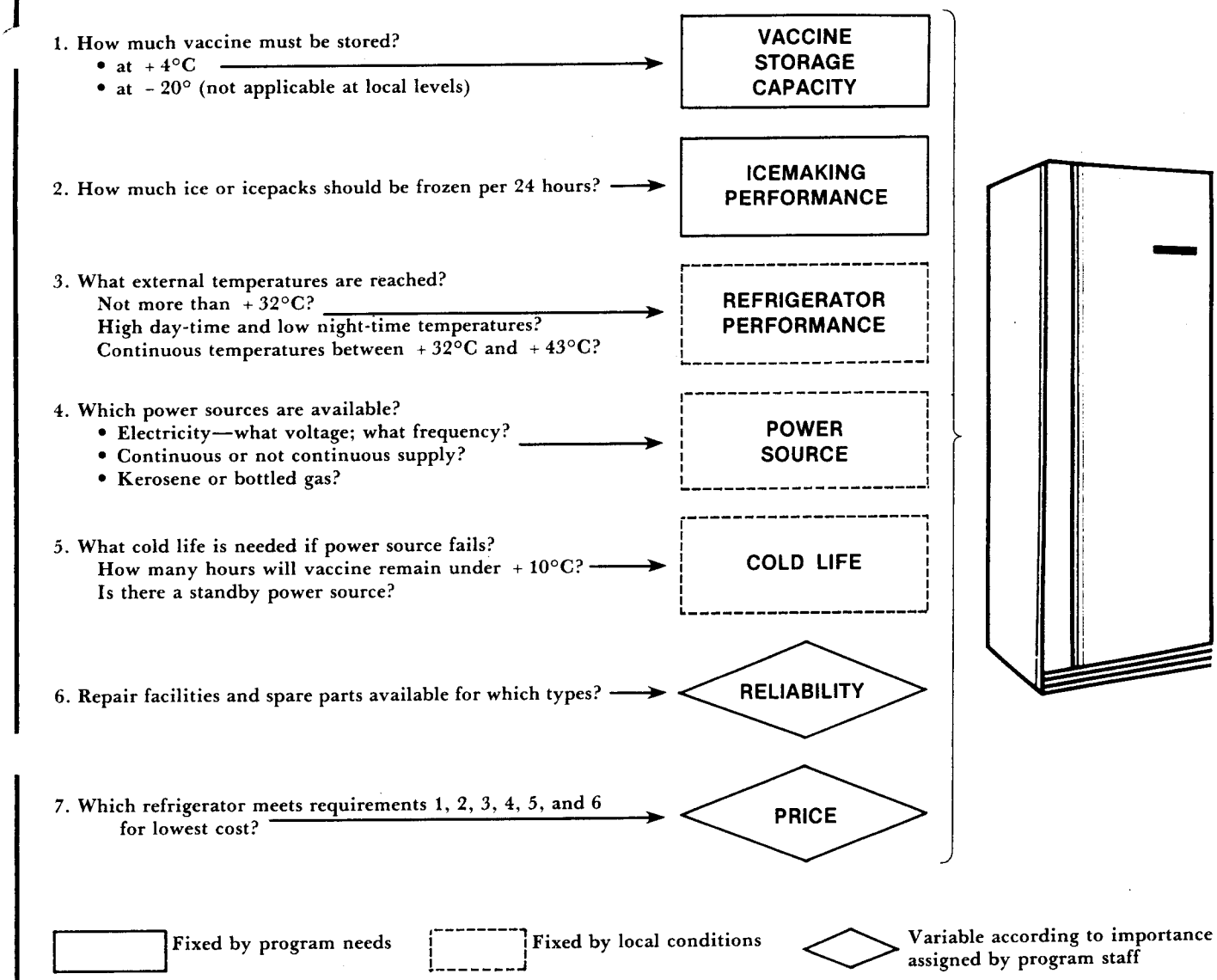
Reliability and price

Users may differ in their opinions as to the relative importance of reliability and price considerations in the procurement of equipment. The reliability of repair services and availability of spare parts are considerations to be weighed carefully. For those users who must import most of their equipment, the type of repair services offered by local shops may be a more important criterion than the availability of spare parts. The opposite may be true in an area where the local repair facilities are not familiar with the the kinds of equipment imported.

After evaluating which types of equipment best meet the user's criteria, the last step is to determine which equipment meets these criteria at the lowest price (including freight costs).

Source: WHO document EPI/CCIS/81.6.

FIGURE 1. Choosing a Refrigerator or Freezer



Editorial Note: Users who desire assistance in identifying available vaccine-storage equipment should consult the WHO/UNICEF Product Information Sheets (available from each country's EPI program manager) and/or WHO document EPI/CCIS/81.6, "Vaccine Refrigerators and Freezers: Summary of all Testing up to May 1981" (available on request to the *EPI Newsletter* editor).

EPI Operations in Bolivia, 1981

Training

A major focus of Bolivia's EPI activities in 1981 was on training health center personnel to carry out vaccinations in accordance with EPI norms. Three regional workshops were held during the year, grouping the country's 11 Health Jurisdictions into three large areas: the central area (for the Health Jurisdictions of La Paz, Cochabamba and Oruro), the southern area (for Chuquisaca, Potosí, Tarija and Tupiza), and the northern area (for Santa Cruz, Beni, Pando and Riberalta). One hundred nine doctors and graduate nurses were trained in these workshops. At the local level, 622 health workers, most of them nurses' aides, were trained in 12 workshops.

In addition to these workshops, 45 people attended the national meeting of epidemiologists and EPI administrators held in the city of Santa Cruz from 28 November to 2 December.

Immunization personnel

Approximately 60 percent of health center workers are currently involved in immunization activities. Some 110

vaccinators working in areas with difficult access are distributed among the 11 Health Jurisdictions. Regional epidemiologists, rural supervisors, nursing personnel and health educators also lend their assistance to the program.

As of 1 January 1981 all health centers should have been integrated into the EPI, however Health Jurisdiction statistics show that only 60 percent of them are implementing the EPI norms.

The central level, with its team of epidemiologists from the Division of Epidemiology, also cooperates with the EPI. It has been directly involved in the supervision of all Health Jurisdictions, in accordance with the activity timetable which was established at the beginning of the year.

External support

USAID-Bolivia, under P.L. 480, Title III, continued to support the EPI in the areas of personnel, the cold chain and vaccination materials, and furnished funds for supervisory activities and the purchase of biologicals. The EPI budget under P.L. 480 was 7,266,132 bolivian pesos.

Rotary Club International has contributed US$100,000 to Bolivia's EPI, which has been used mainly for cold chain equipment and biologicals.

Biologicals purchased

Table 1 shows the total number of doses of vaccines purchased for 1981, the number of doses distributed, and the number of doses reported as used, together with the calculated percentage of vaccine wastage for all Health Jurisdictions.

These data show that DPT and polio vaccine wastage has been within the expected limit of 30 percent, while measles vaccine wastage has been much greater than the expected limit of 10 percent.

TABLE 1. **Vaccine doses purchased, distributed, and reported as used, and estimated wastage. Bolivia, 1981.**

Vaccine	Doses purchased	Doses distributed	Doses used	% vaccine wastage
Poliomyelitis	990,000	604,950	429,330	29.0
DPT	487,000	500,040	403,163	19.4
Measles	240,000	262,420	185,033	29.5

Vaccines administered in 1981

According to Table 1, a total of 429,330 doses of polio vaccine were applied in 1981, 403,163 doses of DPT, and 185,033 doses of measles vaccine. A breakdown of these figures by dose in series and age group is given in Table 2.

In the areas where the EPI norms are being implemented, covering approximately 106,000 children under 1 year of age (roughly half of the country's total population under 1), this age group received 27,605 third doses of polio vaccine (25.9 percent coverage), 26,187 third doses of DPT (24.5 percent coverage), and 34,488 single doses of measles (32.3 percent coverage). These figures indicate an increase in vaccination coverage of approximately 39 percent with respect to 1980.

TABLE 2. **Vaccines applied by dose in series and age group. Bolivia, 1981.**

Vaccine	Dose in series	Age Group: Less than 1 year	1 year	2 years	3 years and older	Total
Poliomyelitis	First	81,390	36,099	34,481	46,148	198,118
	Second	45,375	24,797	24,614	31,833	126,619
	Third	27,605	21,651	20,746	34,511	104,593
DPT	First	77,637	35,552	33,737	45,820	192,746
	Second	42,950	23,478	22,781	30,731	119,940
	Third	26,187	18,865	16,929	28,496	90,477
Measles	Single	34,488	38,579	34,816	77,150	185,033

Vaccination coverages for each Health Jurisdiction, by dose number in series, are given in Table 3.

TABLE 3. **Vaccination coverage (of accessible population), by Health Jurisdiction and dose number in series. Bolivia, 1981.**

Health Jurisdiction	Poliomyelitis 1st	Poliomyelitis 2nd	Poliomyelitis 3rd	DPT 1st	DPT 2nd	DPT 3rd	Measles Single dose
La Paz	67.3	37.8	24.3	66.1	37.4	23.5	29.1
Cochabamba	48.8	48.6	41.3	58.0	40.8	37.8	39.3
Santa Cruz	119.9	65.2	38.2	118.4	61.1	36.9	44.6
Chuquisaca	60.0	33.6	20.0	56.1	33.4	16.4	28.1
Potosí	33.6	24.0	7.6	32.1	21.8	6.6	17.7
Tarija	94.2	49.8	24.0	92.7	48.5	24.0	33.0
Oruro	96.4	41.0	21.5	94.1	40.5	21.0	38.0
Tupiza	98.5	37.6	11.7	94.8	40.0	11.0	27.2
Beni	77.2	36.4	14.5	77.7	37.1	14.7	19.4
Riberalta	83.1	28.3	10.0	88.0	31.6	12.1	31.4
Pando	110.3	42.1	13.5	109.4	39.1	14.0	46.0
Bolivia	76.0	42.5	25.9	72.7	40.2	24.5	32.3

A breakdown of vaccinations given in rural vs. urban areas gave the results shown in Table 4.

TABLE 4. **Number of doses of vaccine administered in rural vs. urban areas. Bolivia, 1981.**

Vaccine	Number of vaccine doses administered (% of total doses): Urban	Rural
Poliomyelitis	192,650 (45)	236,511 (55)
DPT	171,844 (43)	231,507 (57)
Measles	59,826 (32)	125,108 (68)

Source: *Boletín Epidemiológico* No. 79, 1981 (Ministry of Public Health and Welfare, National Epidemiology Division, La Paz, Bolivia).

NUMBER OF REPORTED CASES OF MEASLES, POLIOMYELITIS, TETANUS, DIPHTHERIA AND WHOOPING COUGH. 1981 AND 1980, BY COUNTRY.

COUNTRY	DATE OF LAST REPORT	MEASLES		POLIOMYELITIS		TETANUS		DIPHTHERIA		WHOOPING COUGH	
		1981	1980	1981	1980	1981	1980	1981	1980	1981	1980
ARGENTINA	02 JAN. 82	17,743	16,123	5	26	206	219	79	86	21,823	27,223
BAHAMAS	31 DEC. 81	45	484	—	—	2	3	—	—	8	15
BARBADOS	02 JAN. 82	1	27	—	—	7	13	9	11	12	—
BOLIVIA	05 DEC. 81	6,111	3,581	15	48	162	177	21	31	3,726	2,377
BRAZIL	19 DEC. 81	54,434	95,154	164	1,342	2,476	3,125	3,372	4,515	37,320	43,908
CANADA	26 DEC. 81	2,287	13,347	—	—	2	2	8	63	2,566	2,812
CHILE	19 DEC. 81	6,162	3,709	...	—	20	23	197	238	2,043	2,690
COLOMBIA	18 MAY 81	6,507	3,106	82	45	192	231	54	148	1,832	2,893
COSTA RICA	02 JAN. 82	170	1,001	—	—	11	9	—	—	168	964
CUBA	31 DEC. 81	18,487	3,924	—	—	22	26	—	—	379	131
DOMINICA	02 JAN. 82	27	—	—	—	—	2	—	—	6	1
DOMINICAN REP.	02 JAN. 82[a]	2,835	9,760	71	138	88	94	125	187	212	558
ECUADOR	25 JUL. 81	3,210	1,222	9	5	42	34	11	4	394	599
EL SALVADOR	02 JAN. 82	12,546	2,315	52	55	122	98	1	2	3,911	1,005
GRENADA	02 JAN. 82	9	53	—	—	3	3	—	1	—	6
GUATEMALA	26 DEC. 81	3,472	2,681	42	66	80	61	17	7	1,211	1,550
GUYANA	26 DEC. 81	41	464	...	...	...	...	...	1	35[b]	...
HAITI	03 JAN. 82	2,029	348	—	6	117	276	14	35	400	516
HONDURAS	02 JAN. 82	5,857	4,188	18	3	24	31	—	2	1,812	2,503
JAMAICA	10 OCT. 81	5,152	25	—	—	9	10	7	9	12	10
MEXICO	28 FEB. 81	2,687	3,686	28	149	71	83	—	—	836	609
NICARAGUA	No data										
PANAMA	02 JAN. 82	4,322	2,000	—	—	43	30	1	—	101	648
PARAGUAY	02 JAN. 82	622	1,265	60	7	193	192	6	14	622	913
PERU	02 JAN. 82	4,708	8,721	149	175	203	276	56	194	4,987	4,747
SANTA LUCIA	26 DEC. 81	134	35	—	—	3	1	—	—	471	19
ST. VINCENT AND THE GRENADINES	02 JAN. 82	19	257	—	—	—	—	—	—	1	—
SURINAME	03 JAN. 82	720	254	—	—	...	...	2	—	...	...
TRINIDAD & TOBAGO	02 JAN. 82	3,600	384	—	—	14	30	3	—	9	10
U.S.A.	02 JAN. 82	3,032	13,506	6[c]	9[d]	60	95	4	3	1,189	1,730
URUGUAY	02 JAN. 82	13,601	154	—	—	12	22	—	—	467	162
VENEZUELA	02 JAN. 82	28,207	8,761	18	2	...	...	6	12	3,683	2,844

[a] Data collected during EPI evaluation held in March 1982
[b] 19 September 1981
[c] All paralytic cases
[d] 8 paralytic cases

— No cases
... Data not available

Editorial note: This report outlines some of the progress being achieved with the implementation of the recommendations and plan of action elaborated by the multidisciplinary group which evaluated Bolivia's EPI program in December 1980 (see *EPI Newsletter* Vol. III, No. 4).

To be noted are the increase in coverage with all the vaccines and the efforts being made to expand activities to rural areas. The higher coverage is particularly evident in the case of measles vaccine—national coverage of the accessible population in 1980 was only 10 percent, as compared to 1981 coverage of 32 percent. DPT and polio vaccine coverage increased from less than 15 percent in 1980 to about 25 percent in 1981.

It is also evident that a high dropout rate in completion of the three doses of DPT and polio vaccines remains a problem, since only about 30 percent of those receiving the first dose of these vaccines have completed the full course of immunization. If this dropout rate could be reduced by half, the coverage for these two vaccines would increase to approximately 50 percent—a major achievement for such a short period of program implementation.

It remains to be seen if, during 1982, such a reduction in dropout rate can be achieved, and whether the remaining 40 percent of health centers not yet implementing the norms can be incorporated into the program.

Finally, the external support of USAID through Title III of P.L. 480 and Rotary International have been fundamental for this first year of program implementation, and their continued support should be sought to assure further progress.

Suriname Holds EPI Workshops

Four EPI workshops were held in Suriname in January and February 1982 using the EPI course modules. The course had been translated into Dutch and 400 copies were printed by the Caribbean Epidemiology Center (CAREC) as part of its ongoing technical cooperation.

Two workshops took place in Paramaribo (29-31 January and 2-4 February) and two were held simultaneously in Albina and Nickerie (5-7 February). Two days were dedicated to self-study using the EPI modules, while the third day was devoted to analysis and planning at the health-center level. The third day ended with plenary sessions to discuss inputs required from the EPI program at the national level.

Most of the 227 participants registered in these workshops were nursing staff involved at various levels in the program. Also included were physicians, final-year medical students, advanced nursing education students, representatives of various voluntary associations and cold-chain personnel from the central level. The meetings in Paramaribo were held in the building of the Surinamese Medical Association.

Source: Ministry of Public Health and Dr. Xavier Leus, PAHO epidemiologist, Paramaribo, Suriname.

Costa Rica Publishes Manual of Norms and Procedures

The Epidemiology Division of Costa Rica's Health Ministry has published a Manual of Norms and Procedures to be used by health workers involved in immunization activities. The manual gives information on the history of Costa Rica's immunization program, the priority age groups for the country, its coverage goals, the simultaneous application of vaccines, and the appropriate intervals between doses. It also present guidelines for the application and preservation of the vaccines used (DPT, poliomyelitis, measles, measles-rubella, tetanus toxoid, DT and BCG) and outlines general procedures for maintaining an effective cold chain.

Readers who are interested in obtaining copies of this publication should write to: Dra. Emilia León de Coto, Directora, Departamento de Vigilancia Epidemiológica, Ministerio de Salud, Apartado 10005, San José, Costa Rica.

Source: Department of Epidemiological Surveillance, Ministry of Health, Costa Rica.

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 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: Dr. Ciro de Quadros
Assistant Editors: Mr. Peter Carrasco
Ms. Kathryn Fitch

Contributors to this issue:
Ms. Maureen Anderson, PAHO
Dr. Marjorie Pollack, PAHO Short-term Consultant

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

ISSN 0251-4710