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Surveillance of Wild Poliovirus in the Americas

The Pan American Health Organization's (PAHO) initiative (1) to eradicate the transmission of wild poliovirus from the Americas has required extensive laboratory support (2-4). Virologic studies are necessary to confirm suspected cases of poliomyelitis, to identify cases associated with wild polioviruses, to help guide control activities to areas requiring reinforced efforts, and finally to provide evidence that endemic poliovirus transmission has been stopped. Close integration of field and laboratory operations has been the cornerstone of the PAHO Polio Eradication Initiative. This report describes the results of wild poliovirus isolation for 1989 and the first ten months of 1990.

All polioviruses isolated from stools of patients with acute flaccid paralysis are characterized by hybridization with strain-specific nucleic acid probes (5). The initial identifications are confirmed by polymerase chain reaction (PCR) analyses using primer sets specific to each vaccine strain and to the predominant wild polioviruses indigenous to the region (6). Wild viruses identified by these procedures are further characterized by partial nucleotide sequencing of the virus genomes (7), which reveals the genetic relationships among virus isolates. Because poliovirus genomes evolve rapidly during replication in humans (7), the proximity of epidemiologic links among cases may be estimated by the extent of nucleotide sequence relationships among isolate genomes. Sequence information is also used to aid systematic design of nucleic acid probes and PCR primers (5,6).

Specimens from probable cases are processed by the PAHO Laboratory Network (see editorial note). All Network laboratories perform virus isolation and serotype de-

terminations. Two laboratories are capable of characterizing the viruses isolated as wild or vaccine-related using nucleic acid probes, PCR, and genomic sequencing. Three additional laboratories are capable of performing DNA probe and PCR testing. All poliovirus isolates are referred within the Network to specialized reference laboratories for testing by PCR analysis and, if wild, by genomic sequencing. The detection of wild polioviruses is immediately reported to PAHO so that ongoing control measures can be intensified as quickly as possible.

Of the 24 wild poliovirus isolates in 1989, 15 were wild type 3, eight were type 1, and one type 2. Cases associated with wild type 3 poliovirus occurred in Mexico (13 type 3) and Colombia (three type 3). Cases associated with type 1 occurred in Venezuela (one type 1), Colombia (two type 1), Ecuador (two type 1), and Brazil (two type 1). One case associated with wild type 2 poliovirus occurred in Peru. These 24 wild poliovirus isolates were limited to three geographic regions (Figure 1): western Mexico, the northern Andean subregion (Venezuela, Colombia, Ecuador, and Peru), and northeastern Brazil (2-3). In Brazil the last case of paralytic polio from whom wild poliovirus was isolated occurred nearly two years ago (March 19, 1989). Wild isolates of the same serotypes from different geographic regions were unrelated.

During the first ten months of 1990, ten cases were associated with wild poliovirus; this represents a 44% decline from the 18 patients with acute flaccid paralysis associated with wild poliovirus isolates during the first 10 months of 1989. The ten isolates in 1990 were from western Mexico (four type 3), Guatemala (three type 3), and the northern Andean subregion (three type 1) (Figure 1).

In this issue:

Surveillance of Wild Poliovirus in the Americas	1
The of EPI in the Andean Region	4
Social Mobilization in the Caribbean	5

Missed Opportunities for Vaccination in Guatemala	6
Reported Cases of EPI Diseases	7
EPI Coverage in Guyana	8

The wild type 3 poliovirus from Guatemala in 1990 was first isolated from a contact of an unvaccinated 2-year-old child with acute flaccid paralysis whose stool specimens (taken 65 days after onset of paralysis) were negative for virus isolation. Nucleotide sequencing revealed that the wild type 3 polioviruses isolated in Guatemala this year were related to viruses isolated during outbreaks in western Mexico in 1988, 1989, and 1990. They were only distantly related to previous Guatemalan wild type 3 polioviruses.

The first case from Guatemala (onset: April 19) occurred near the Pan American Highway, close to the border with Mexico. The last case (onset: September 25) also occurred near the Pan American Highway, further to the southeast. The three wild polioviruses isolated in 1990 in the northern Andean subregion were all type 1 (Figure 1). Nucleotide sequencing indicated that these isolates were related to each other, with the closest relationships detected among recent (1988 - 1989) isolates from the same local areas (southern Colombia, coastal Ecuador, and northern Peru), suggesting that endemic transmission continues in this subregion.

All areas of known wild poliovirus transmission in Mexico, Guatemala, and the northern Andean subregion, have already undergone "Mop-up Operations". These are special campaigns of house-to-house mass vaccination with oral polio vaccine (OPV) of every child less than five years of age regardless of vaccination history (2). Intensive surveillance is in place to assure that transmission has been interrupted.

Editorial note: Central America had apparently been free of wild poliovirus transmission for more than two years until the recent wild poliovirus-confirmed cases which oc-

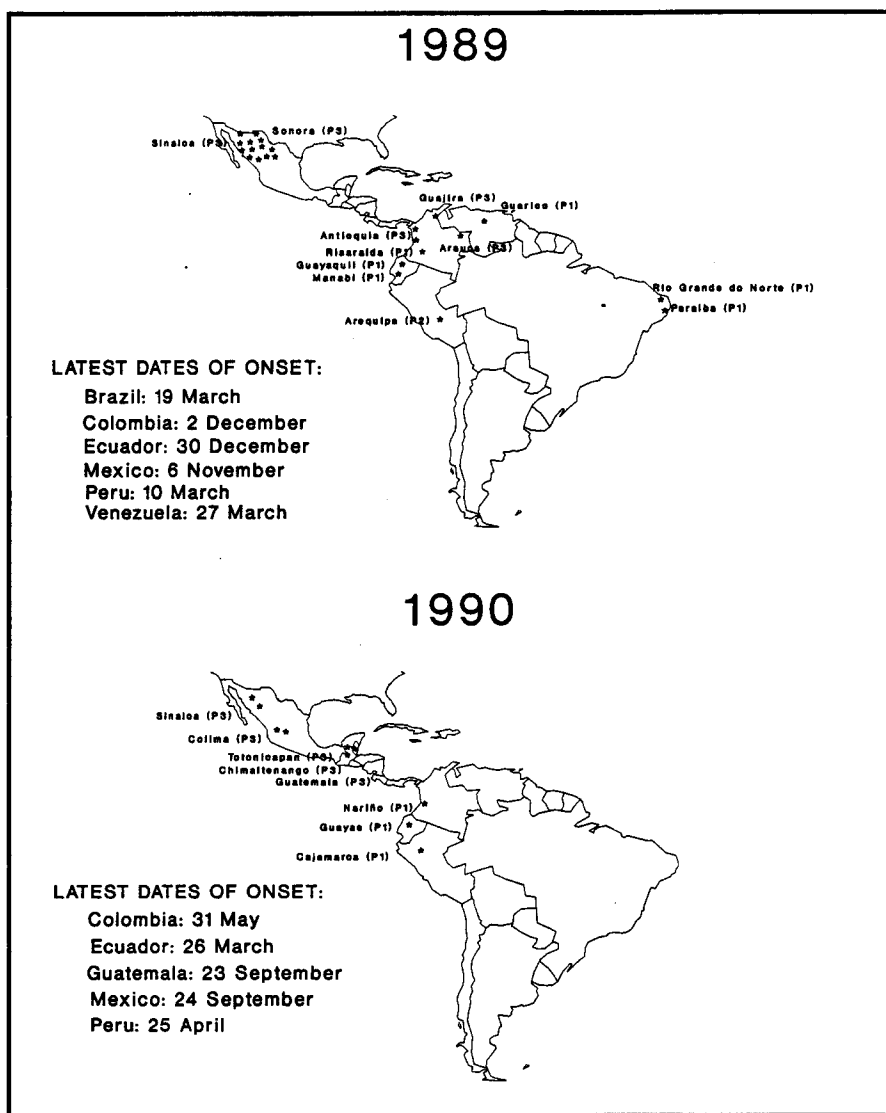
curred in Guatemala. The most recent previous wild poliovirus case in Central America (December 1987) also occurred in Guatemala (8) and was associated with type 1 virus. The preliminary data suggest that the wild type 3 poliovirus isolate from Guatemala in 1990 may have been imported from western Mexico, where recent transmission had occurred prior to the appearance of cases in Guatemala. The occurrence of cases in Guatemala emphasizes the importance of maintaining intensive surveillance and

immunization, even in countries thought to be free of polio, since importation of wild polioviruses from countries with endemic transmission is a continuing threat.

At this stage in the eradication initiative, virologic information is essential to effective surveillance. A decreasing fraction of paralytic illnesses in Latin America are associated with isolation of polioviruses from patients, despite steady improvements in field and laboratory surveillance (3,9). Furthermore, only a small proportion of the current poliovirus isolates are wild. To improve the likelihood of detecting wild polioviruses, all investigations of acute flaccid paralysis should include the collection of samples from at least five children under five who had close contact with the index case (9).

Poliomyelitis, like smallpox, has several key characteristics that favor eradication; among these are: 1) there is no animal reservoir for poliovirus infection, so breaking the chain of human transmission will eliminate the virus; and 2) there are vaccines which can provide life-long immunity (10). However, unlike smallpox which is clinically distinctive, poliomyelitis evaluation may be confused with other causes of flaccid paralysis. Therefore, an extensive laboratory support system is required to confirm or rule out

Figure 1. Wild Poliovirus Isolated in the Region of the Americas



poliovirus as the cause of a case of acute flaccid paralysis. To that end, PAHO began to develop the Laboratory Network of the Americas shortly after announcement of the polio eradication initiative in 1985. Since its inception, the Laboratory Network has provided essential diagnostics, and also serves to enhance laboratory performance by developing new technologies and analytic approaches, by providing training, and by maintaining strong collaborations among laboratories.

The development of the Laboratory Network was a collaborative effort of several different agencies (11). An early step in this effort were site visits by consultants from PAHO and the WHO Collaborative Center at CDC to the national laboratories in 14 countries in the Americas. From these evaluations, eight laboratories were selected to form the Network based on their capacities to perform polio diagnosis (Fundação Instituto Oswaldo Cruz [FIOCRUZ] in Brazil, Laboratorio Nacional de Salud Pública [LNSP] in Mexico, Instituto de Nutrición de Centroamérica y Panamá [INCAP] in Guatemala, Caribbean Epidemiology Center [CAREC] in Trinidad, Instituto Nacional de Higiene [INH] in Venezuela, Instituto Nacional de Salud [INS] in Colombia and Instituto Nacional de Microbiología "Dr. Carlos Malbrán" (Malbrán) in Argentina, and Centers for Disease Control [CDC] in the United States).

Representatives of the Network meet regularly to discuss the evaluation of testing methods, interpretation of findings, ways to improve Network performance, implementation of new technologies, further collaborative research activities, and Network resource and training needs. The Network has been challenged by a number of logistical obstacles that require regular attention and evaluation. Challenges encountered in the field include the timely collection, proper storage, and safe shipment of the appropriate clinical specimens (2-3). Challenges confronting the laboratories include: difficulties in maintaining cell lines for virus cultivation, difficulties in serotyping viruses, problems with virus contamination in the laboratory, delays in reporting results, and the frequent turnover of skilled laboratory staff.

The establishment of PAHO's Laboratory Network is a key achievement of the polio eradication initiative in the Americas. PAHO publishes and distributes the Weekly Polio Bulletin, which not only provides regular updates of laboratory findings, but also monitors the status of all stool specimens collected from patients with acute flaccid paralysis in Latin America. The experience gained from organizing and maintaining the Network, particularly that related to devising new approaches to overcome the obstacles and ensure that the Network remains operational, will be useful to other WHO regions that embark on similar programs in the future.

The success of the PAHO polio eradication initiative, especially the development of the necessary infrastructure, including the Laboratory Network, has required substantial financial support. In addition to the continued support by governments and member states of PAHO, several donor agencies have contributed funds totaling US\$113.4 million

for 1987-1991 (U.S. Agency for International Development [US\$42.5 million of which US\$22 million was administered through PAHO], Rotary International [US\$28.6 million], Inter-American Development Bank [US\$5.5 million administered through PAHO], United Nation's Children Fund [US\$30.1 million], Canadian Public Health Association [US\$1.4 million], and PAHO/WHO [US\$5.7 million]). National budgets contributed another US\$430.0 million to the effort. The strong commitment to the eradication initiative by these agencies, both public and private, serves as an exemplary model of cooperation for future international public health ventures.

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The EPI in the Andean Region

The Second Andean Meeting for the Assessment of EPI and Polio Eradication was held in La Paz, Bolivia, August 27-29, 1990. This meeting followed the decision adopted by the Andean countries during the Seventh Meeting of the EPI Technical Advisory Group in Cartagena (July 1989), to coordinate activities so as to reach the goals of EPI regarding universal child vaccination and polio eradication by 1990. The participants included, in addition to central-level officers from the Epidemiology and Maternal and Child Health areas of the participating countries -- Bolivia, Colombia, Ecuador, Peru, and Venezuela--, health officers from the local and operative levels, and representatives of the International Agencies already cooperating with the Program (USAID, UNICEF, Rotary Club International, and PAHO/WHO). This Meeting served to update the current country status and the efforts being implemented to enhance country immunization programs.

Conclusions and recommendations

1. EPI's activities are being greatly improved in all countries. This suggests that such process could be accelerated, particularly if all efforts are made to perform analysis at the provincial, municipio and district level within each country, so as to adapt the strategies to the local realities.

2. The Group is concerned by the uneasy progress towards eradication and increased vaccination coverage goals in a number of area countries, particularly Peru and Bolivia; as well as by the recent confirmation, in Peru and Ecuador, of circulation of wild poliovirus. Increased vaccination activities with all of the EPI antigens is recommended, based on the coverage information available at all levels.

3. The presence of wild poliovirus in border areas requires joint actions by the affected countries, which, in addition to field actions, should organize assessment and information-exchange meetings. Such experiences have been successful in this very Region faced with previous problems. The current situation requires an urgent meeting between Peru and Ecuador.

4. The new case classification recommended during the 8th TAG Meeting, in Mexico, F.D., Mexico, should be adopted (see *EPI Newsletter*, Year XII, No. 2).

5. Each country should consider the financial aspects of its program, particularly when the time to launch Stage II of EPI comes closer. Each country should submit its 1991-1995 Action Plan to the National Inter-Agency Coordination Committees by the end of October, 1990. Such Plan should maintain the specific goals of wild poliovirus eradication and include the elimination of neonatal tetanus, and measles control for 1995. The need that the countries seek mechanisms that enable them to autofinance biological products and syringes should be particularly emphasized.

6. The recommendation of the 8th TAG was ratified, in respect to awarding a US\$100 bonus to whomever re-

ports cases where wild polioviruses are isolated.

7. It was recommended that country reports prepared for the Inter-Agency Coordinating Committees by each country, be as detailed and profound as those presented during this meeting. The presence of the highest authorities of the Health Ministries and the agencies involved should be sought.

8. The recommendations from the International Committee for the Certification of Polio Eradication should be followed without delay, particularly the following ones:

- A negative weekly reporting level over 90 percent should be reached, on the basis of appropriate surveillance networks.
- All cases of acute flaccid paralysis must be reviewed by an epidemiologist within 48 hours following reporting.
- The quality of stool shipments should be documented. The presence of ice during each stage of their handling should be verified.
- A reporting rate of at least 1 per 100,000 population under 15 years of age should be maintained. Whenever possible, its review should be done within each country.
- At least in 80 percent of the cases, two appropriate stool samples should be obtained, as well as samples for at least five contacts for each case. The contacts should be children under five years of age, should be in close (geographic and epidemiological) connection with the case, and should not have been vaccinated during the last 30 days. A review of this last item must be submitted at the next meeting, as well as the number of cases with two appropriate stool samples, and that of cases with contact samples.

9. Review the Epidemiological Surveillance Indicators in more limited areas within each country, so as to more accurately correct any problems.

10. Country progress in the definition of national neonatal tetanus risk was acknowledged, as well as the start of actions aimed at controlling such risk, particularly in the realm of intranosocomial vaccination, reduction of missed opportunities, and administration of tetanus toxoid in the framework of all field activities. Maintenance of appropriate epidemiological surveillance was recommended, together with action-guiding operative studies, such as those regarding the relationship between altitude and incidence, among others. Higher-risk populations within risk areas should be identified for action-prioritizing purposes.

11. The Group recommended efforts to persuade the population that there is no linkage whatsoever between tetanus toxoid vaccination and birth control methods. It was remarked that the tetanus toxoid can be safely administered at any time during pregnancy.

12. With respect to measles, the following recommendations were issued: enhanced epidemiological surveillance; improved information quality, reviewing and adequately documenting the outbreaks and control actions in connection thereof. This all would be aimed to gather experiences on which field decisions adapted to the Andean realities can be made. Each country should submit a review of a measles outbreak during the next Andean Group meeting. In the event of an outbreak, actions should be aimed to protect high-fatality groups.

13. The examples shown demonstrated the importance of using the information on missed opportunities to effect actions that enhance the use of every contact between the community and the health services, as evidenced by the success of the intranosocomial vaccinations drives, which should be extended to all health services outside the region on a permanent basis. Each country should submit a report

on the impact of its missed-opportunity reduction actions.

14. The need to administer the OPV doses at birth in all countries was confirmed.

15. Each National Vaccination Committee must be connected with the local Committees representing civilian, religious, and military institutions, so as to gain the valuable assistance of such institutions.

16. The participating countries pointed to the success of the Andean Vaccination Day experience, and recommended its reiteration, provided that the date be set early enough. The idea was also put forward, to turn it into a Latin American Vaccination Day.

17. The issues of cold chain, and quality control of biological materials must be subjects of country reports during the next meeting.

Social Mobilization in the Caribbean

EPI Managers and Health Education specialists from Antigua, Barbados, Bahamas, Belize, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Vincent, and Trinidad and Tobago participated in the first workshop on social mobilization in support of the EPI organized by PAHO and UNICEF. The workshop was designed to provide an overview of the program elements essential for mobilizing primary and secondary audiences. It covered the areas of audience identification, data collection, options for developing communication strategies, and evaluation methodologies to assess the effectiveness of social mobilization activities.

The workshop participants defined the process of social mobilization as broad in scope, encompassing activities related to preparing messages and using multimedia as well as mobilizing audiences responsible for organizing or providing immunization services. It was also noted that identifying primary and secondary audiences is crucial in order to ensure that all efforts are made by the national EPI to vaccinate 100% of the target population, and to eliminate the indigenous transmission of measles.

Each country presented an overview of its health education activities, including management and planning efforts designed to support accelerated immunization actions. In spite of sometimes having little input from external sources and minimal budgets, many countries have produced posters, pamphlets, bumper stickers, booklets and jingles for EPI educational activities. These activities combined with other immunization activities have resulted in EPI vaccine coverage rates ranging between 59-100% for measles/MMR vaccine and 71-100% for DPT and OPV vaccines. Thirteen countries and territories have reached 80% or better coverage with measles or MMR vaccine. It was noted that lower vaccine coverage is found in countries with larger populations. The participants concluded that countries have been very successful in their promotional efforts of immunization since EPI vaccination coverage is, on the average, very high. However, it was clearly noted that in many countries coverage had levelled off in the past few years, and that well-or-

ganized social mobilization efforts would be needed to reach the remaining 20-30% of the target population. Due to the presence of pockets of severe economic depression and the loss of manpower from the health sector, this population does not currently benefit from immunization services, and is likely to be difficult to reach. More importantly, if measles is to be eliminated from the sub-region by 1995, then social mobilization efforts must be aimed at low coverage/high risk areas where chains of transmission of the measles virus can occur and be sustained.

There was agreement that the goals and activities set to achieve measles elimination by 1995 will be difficult to achieve due to the economic situation and the region-wide exodus of health workers, especially nurses. The resulting shortage means that every sector of society will need to be mobilized to provide support for immunization activities. In addition, it was agreed that national health budgets for preventive health programs such as the EPI need to be increased and maintained to ensure that all available resources are provided to protect children and eliminate the transmission of indigenous measles by the end of 1995.

One concentrated effort towards this goal is the "Measles Elimination Month", which has been scheduled for May 1991. If it is to be successful and if it is to lead to the detection of additional cases of measles afterwards, then it is critical that social mobilization activities be designed to encourage concern in both the public and health sectors for maintaining high levels of measles immunization coverage and reporting suspected measles cases. This last point cannot be overemphasized since the success of eliminating the transmission of measles also hinges on adequate surveillance of rash and fever cases. Every country and territory will have to define coverage problems and ensure reporting by the community and health sectors. Once completed, appropriate goals can be set and strategies and communication activities can be proposed to reach the goal of 100% vaccination coverage with all EPI antigens, particularly measles vaccine.

Recommendations

1. All countries and territories should prepare social mobilization programs as part of their national EPI Plan of Action, using the "social mobilization matrix" if possible.

2. PAHO should create a task force to follow up with every country and territory on the development of social mobilization programs and assure the implementation of activities in accordance with the Guidelines for the Implementation of Measles Immunization Month in the English-speaking Caribbean and Suriname.

3. All national and political authorities as well as influential community leaders should be contacted as early as possible to inform them of the goals regarding the EPI. Their vigorous support in mobilizing all sectors of society could prove invaluable.

4. A Caribbean-wide program to organize the participation of target populations should be established as a feature of the social mobilization effort towards measles elimination.

Missed Opportunities for Vaccination in Guatemala

A study on Missed Opportunities for Vaccination and Strategies for Intervention was undertaken in Guatemala. Missed opportunities to vaccinate were defined as the situation in which children under two years of age and women of child-bearing age who are eligible and in need of vaccination were not administered vaccines upon visiting a health care facility.

A group of 1 326 attendants of children under two years of age was studied, as well as 2 797 women of child bearing age, 124 health care workers, in 124 facilities in 7 regions of the country. These groups were studied by several methods, including exit interviews of attendants of children and women of child bearing age, formal interviews with health care workers, and meetings with community leaders.

Out of a total of the 1 326 children under two years of age, 669 (50.5%) reported one or more missed opportunities for vaccination, by type of vaccine: DPT 48%, OPV 47%, Measles 20%. The major reasons for missed opportunities included false contraindications (56%), of which 66% were fever; apathetic personnel (12%); logistical problems (15%); and lack of familial concern (4%).

It is interesting to note that of the 2 797 women of child bearing age questioned, 80% reported missed opportunities for vaccination with Tetanus Toxoid, due to apathetic personnel (74%), lack of familial concern (12%), logistical problems (10%), and false contraindications (10%).

The efficiency of the health services has reached a degree of moderate satisfaction and has permitted the identification of specific limits of the EPI. The poor understanding, attitudes, and practices of the community with regard to vaccination generate missed opportunities and lead to failure to comply with vaccination schedules. This is accentuated by health workers' poor interpersonal relations with the community and is aggravated by limitations in accessibility.

To capitalize on all opportunities for vaccination in health care facilities, intervention strategies must be implemented and attitudes toward vaccination must be changed. Missed opportunities can be reduced by implementing use of Personal Vaccination Records which will alleviate difficulties in adhering to a vaccination schedule.

Missed opportunities for vaccination in Guatemala thwart expansion of immunization coverage and hamper the development of the EPI. Immediate action and adequate use of resources without additional costs are necessary to capitalize on these missed opportunities and further increase immunization coverage.

The study recommended that one strategy to reduce these missed opportunities should include the review of vaccination records of all persons who visit health care facilities for services and that any pertinent vaccinations should be administered immediately. These vaccines should be administered on any working day by the health care facility. Standard vaccination procedures should be disseminated and enforced with reference to contraindications and the misconception on vaccine waste. In addition, already existing methods of administering TT should be made effective.

Vaccination services should be the responsibility of the National Immunization Program on all working days of the year, which should ensure that biologicals are available in sufficient quantities and on a timely basis.

It would also be advisable that steps be taken to assure that all women of child-bearing age and children under five years of age have a Personal Vaccination Record, which they can then carry to each health care facility visit in order to facilitate reviews and recording of immunizations administered. As a routine, vaccination should be routinely administered in waiting rooms, upon a patient's admission or discharge from a hospital.

Appropriate participation of health personnel in reducing missed vaccination opportunities could be facilitated if the National Program carried out training programs on handling, administering, and preserving biological products as well as on accurate vaccination schedules and friendly treatment of patients.

Finally, the researchers recommend that a study of the population which does not visit health care facilities be undertaken, in order to implement a plan of action for this important sector of the population that is missing the services of the routine immunization programs.

Source: Drs. Otto Zeissig, Rafael Hoysler, Cristina Da Cunha; Carlos J. Castillo, and Jean-Marc Olivé.

Reported Cases of EPI Diseases

Number of reported cases of measles, poliomyelitis, tetanus, diphtheria, and whooping cough, from 1 January 1990 to date of last report, and for same epidemiological period in 1989, by country.

Subregion and country	Date of last Report	Measles		Poliomyelitis #		Tetanus				Diphtheria		Whooping Cough	
						Non Neonatal		Neonatal					
		1990	1989	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
LATIN AMERICA													
Andean Region													
Bolivia	6 May	39	128	0	0	...	...	4	51	24	4	82	228
Colombia	22 Apr.	1 831	4 528	1	5	0	68	54	63	7	15	339	454
Ecuador	1 Apr.	523	3 649	1	1	19	93	17	58	1	3	145	256
Peru	30 Jun.	...	...	1	1	...	...	...	...	...	...	...	...
Venezuela	20 Oct.	7 747	5 314	0	1	54	13	21	29	0	0	1 068	173
Southern Cone													
Argentina**	16 Jun.	538	1 107	0	0	26	23	...	...	7	1	967	1 086
Chile	6 Oct.	943	10 524	0	0	17	11	0	2	28	26	50	181
Paraguay	1 Sept.	196	67	0	0	115	17	37	10	3	1	86	49
Uruguay	6 Oct.	4	...	0	0	3	0	0	0	0	...	77	...
Brazil	30 Jun.	...	...	0	2	...	...	...	...	...	...	...	...
Central America													
Belize	27 Oct.	60	5	0	0	0	0	0	0	0	0	3	1
Costa Rica	2 Jun.	6	10	0	0	1	0	0	0	0	0	41	15
El Salvador	30 Jun.	642	13 753	0	0	25	24	9	16	0	0	97	19
Guatemala	2 Jun.	7 257	50	3	0	22	21	1	7	1	0	27	51
Honduras	27 Oct.	8 962	64	0	0	19	7	20	4	0	0	48	19
Nicaragua	26 May	2 436	45	0	0	17	21	6	7	0	0	95	26
Panama	31 Jul.	89	...	0	0	0	0	0	0	0	0	15	...
Mexico	1 Sept.	58 159	8 166	4	13	136	128	28	53	0	6	569	1 286
Latin Caribbean													
Cuba	21 Apr.	1	0	0	0	3	0	0	0	0	...	6	...
Haiti	30 Jun.	...	...	0	0	...	...	...	...	...	...	...	...
Dominican Republic	30 Jun.	...	...	0	0	...	...	...	...	...	...	...	...
CARIBBEAN													
Antigua & Barbuda	22 Sep.	0	0	0	0	1	0	0	0	0	0	0	0
Bahamas	29 Sep.	62	21	0	0	0	0	0	0	0	0	0	0
Barbados	22 Sep.	49	0	0	0	3	0	0	0	1	0	1	0
Dominica	7 Apr.	3	4	0	0	0	0	0	0	0	0	0	0
Grenada	28 Apr.	0	1	0	0	0	0	0	0	0	0	0	0
Guyana	24 Mar	8	3	0	0	0	0	0	0	0	0	0	0
Jamaica	24 Mar.	2 304	3	0	0	...	...	...	...	...	...	...	...
St. Kitts/Nevis	30 Jun.	...	...	0	0	...	...	...	...	...	...	...	...
St. Vicent	24 Mar.	0	0	0	0	3	0	0	0	...	...	...	...
Saint Lucia	7 Jul.	4	6	0	0	0	0	0	0	0	0	0	0
Suriname	30 Jun.	...	...	0	0	...	...	...	...	...	...	...	...
Trinidad & Tobago	6 Sep.	433	1 501	0	0	6	0	0	0	0	0	1	5
NORTH AMERICA													
Canada	31 May	105	275	0	0	0	0	0	0	5	0	3 074	286
United States**	21 Oct.	23 583	13,642	0	0	47	...	0	...	3	...	3 099	3 011

** Country does not report neonatal tetanus data separately.

Data for polio includes only confirmed cases through week 43 (ending 27 October, 1990).

... Data not available.

EPI Coverage in Guyana

Guyana ranks fifteenth of the 17 countries in the Caribbean with respect to immunization coverage. Due to the severe economic crisis that has faced the nation during the last decade, a large proportion of the population has emigrated, with the loss of a disproportionately high number of skilled health personnel. This, along with extensive migration within the country, have imposed major constraints within the health system. In turn, the weakened health system has led to a severe shortage of health manpower and a deterioration of services, especially with respect to the collection and management of health information. In light of this, the authorities decided to determine immunization coverage by conducting a national EPI coverage survey.

Since the interior regions of the country, representing less than 10% of the population are difficult to reach, the more accessible coastal areas of the country were selected, including an estimated 90% of the total population.

The WHO/EPI cluster sampling technique was used. The survey questionnaire was designed to identify the vaccination status of both children and mothers with Tetanus Toxoid vaccine, and to establish reasons for incomplete immunization of children.

Results:

The average age of the population surveyed was 18.3 months, suggesting a random population distribution. It is evident from these data that even with the severe limitations imposed on the national health staff, they have done a superb job in their immunization program. Over 93% of the children in the age group surveyed had evidence of receiving BCG, three doses of DPT and OPV, and 82% coverage with measles vaccine. This contrasts with national estimates of immunization coverage in the 6 regions surveyed which are some 15% lower than the survey demonstrated.

The proportion of defaulters between the first and third dose of DPT and OPV is less than 5%. The reason for these defaults was, for the most part, due to inability of mothers to

attend the limited immunization sessions held on certain fixed days. The average age at which children received vaccines is within the limits set by the national authorities. Overall coverage for children who have received the complete schedule of all six EPI antigens was 77%. Although the average age at which the fully immunized children were immunized was 10.4 months, only 66.7% were fully immunized at the end of their first year of life. The data indicated that 11.2% of the children who received measles vaccine were immunized before they were 9 months of age. It was also noted that of those receiving BCG vaccine, only 72.3% had evidence of a BCG scar.

Although most mothers had immunization cards for their children (91.5%), very few could show evidence of tetanus toxoid immunizations. The coverage figures obtained are based on verbal interrogation of the mothers. Compilation of these data indicated that 62% of the mothers had received one injection of TT, 42.7% had received two injections and 20.6% had received three injections.

The coverage results of the immunization survey suggest that the true coverage is about 15% higher than the national figures indicated, indicating that the target population is significantly overestimated. Rough calculations based on these and other data indicate that the less than 1 year old target population is probably in the range of 15 440 in the 6 regions under consideration or somewhat less than 17 000 for the country in general. This contrasts with the estimated figures of 18 709 as the target population in the six regions and 20 000 for the country overall. Since the survey was carried out to assess the coverage of the combined 6 regions, the data are insufficient to make separate estimates of the regional populations. If the current attempts to identify and record all births is successful, accurate calculations and projections may be made at the regional and health center level. Until such time as this planned activity is implemented and functioning, it is suggested that the estimated provisional figure of 17 000 children 1 year of age be used as the overall national target population.

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