1990_00114A

PAN AMERICAN HEALTH ORGANIZATION

Pan American Sanitary Bureau, Regional Office of the

WORLD HEALTH ORGANIZATION

EPI/TAG9/91REF.2

EIGHTH MEETING OF THE TECHNICAL ADVISORY GROUP ON EPI AND POLIO ERADICATION

MEXICO, D.F., MEXICO
19 TO 22 MARCH 1990

FINAL REPORT

I. INTRODUCTION

The Eighth Meeting of the PAHO Technical Advisory Group (TAG) for the Expanded Program on Immunization and Polio Eradication took place in Mexico City March 19-22, 1990. Dr. Juan Manuel Sotelo, PAHO Representative in Mexico welcomed the participants in the name of the PAHO Director, Dr. Carlyle Guerra de Macedo. Dr. Jesús Kumate, Secretary of Health for Mexico, inaugurated the Meeting. TAG members present were Dra. Hilda Alcalá, Dr. José Manuel Borgoño, Dr. D.A. Henderson, and Dr. Alan Hinman. Drs. Guillermo Soberón and Joao Baptista Risi were unable to attend. Dr. Henderson chaired the meeting; Dr. Hinman served as rapporteur; and Dr. Ciro de Quadros served as secretary. A complete list of participants and a copy of the agenda are included as Annexes.

II. CONCLUSIONS AND RECOMMENDATIONS

The TAG notes with pleasure the considerable advances since the meeting in Cartagena held in July, 1989. Particularly notable is the fact that it has now been more than three years since the last isolation of wild poliovirus in the countries of the Southern Cone, more than two years since the last isolation in Central America, and more than one year since the last isolation of wild poliovirus in Brazil. Also notable is the fact that there has not been a confirmed case of polio from which wild virus was isolated in the Region for more than five months. The provisional total of 133 confirmed cases in 1989 represents the lowest level of polio ever reported in the Region, a 61% decrease when compared to 1988, in spite of the fact that there were more cases of flaccid paralysis reported. Much of the progress in the reduction of polio can be attributed to the combination of the strategies used in the Americas: national vaccination days and "mop-up" operations which involved vaccinating house-to-house in municipios at high risk or where cases have occurred.

In addition, there are notable improvements in other program indicators, including significant increases in vaccine coverage in some countries (e.g., Colombia). Most countries are now reporting coverage by municipio and are tracking surveillance activities by performance of reporting units. In most countries, interagency coordinating committees have played an important role in strengthening programs. The laboratory network has also been strengthened significantly and advances in molecular biology promise to be an important additional tool in documenting interruption of transmission. The continued support of PAHO/WHO, UNICEF, AID, Rotary International, the Interamerican Development Bank (IDB), and the Canadian Public Health Association (CPHA) has been critical to these advances.

There have also been significant investigations of neonatal tetanus and immunization initiatives directed against its occurrence. Further investigations of missed opportunities for vaccination have led to program innovations which are already bearing fruit. Investigations of measles and hepatitis B have also helped elucidate the importance of these conditions and helped to develop strategies for control.

Notwithstanding these significant advances, there remain substantial causes for concern. The first is the clock, which keeps ticking. Less than nine months remain until the target date for Regional eradication and there are still significant problems to overcome. One of the most apparent is the fact that in some countries coverage levels are stagnant or even declining. There is concern at the slow progress in some countries in increasing coverage to achieve the goal of Universal Childhood Immunization.

In spite of generally improving indices of surveillance and case investigation, the fact remains that 40% of cases considered as confirmed in 1989 either did not have stool specimens collected or did not have stool specimens collected within two weeks of onset of symptoms. Also disturbing is the low rate of participation by reporting sites in weekly reporting, whether positive or negative. In addition, some areas have apparently been allowing stool specimens to accumulate before sending them to the laboratory, instead of submitting

them immediately which is critical for the results to be used in guiding programmatic actions. Some samples have been accompanied by inadequate information about the patient or have been transported under improper conditions.

Faced with this mixture of progress and problems, the TAG makes the following recommendations:

1. The fundamental strategy of the program remains sound - achieving high coverage levels, effective surveillance, and vigorous response to cases. Trivalent oral poliovirus vaccine remains the vaccine of choice.

2. Achievement and maintenance of high coverage levels requires consolidation of the progress already made. This must include managerial improvements and provision of adequate supplies to carry out programs. Governments must allocate the budgetary resources necessary to provide stability to program activities. The continued functioning of the interagency coordinating committees with documentation (and dissemination) of the results of their meetings remains essential. In areas with inadequate coverage, extraordinary efforts must be undertaken to achieve the coverage needed, using a multi-antigen approach and a mix of all available strategies.

   Furthermore, the TAG strongly endorses the efforts being made by countries in the Americas toward achievement of Universal Childhood Immunization by 1990, and specifically the celebration of the Andean/Latin American Vaccination Day to be held on 29 April 1990.

3. In spite of significant improvements in surveillance and case investigation, several further changes are warranted.

   a. It is of the utmost importance that adequate stool specimens be obtained on all cases of acute flaccid paralysis in children less than 15 years of age. This requires adequate quality and quantity of the specimens as well as adequate information accompanying the specimens. The standard must be as follows: obtaining at least two separate stool specimens (of "two thumbs" size each) within the first two weeks after onset of symptoms (and prior to containment immunization) with immediate submission of the specimens under proper conditions of transport to the laboratory accompanied by adequate epidemiological information.

   b. Fecal specimens should be obtained from contacts (less than five years of age) of the patient at the same time as they are obtained from the patient but they should be clearly labeled as "contact" specimens to allow the laboratory to devote priority to patient specimens.

   c. Rectal swabs should not be used to attempt virus isolation. Evaluation of the efficacy of rectal tubes in obtaining adequate stool samples should be pursued by the Americas as soon as possible.

   d. DNA probe technology has great promise for environmental sampling and its further development should be pursued urgently. Once developed, surveillance should expand to include search for wild poliovirus. This should include searching for wild poliovirus in the environment under special circumstances and according to epidemiologic criteria. However, environmental sampling cannot replace diligent surveillance for cases of acute flaccid paralysis.

   e. The offer of a reward to those reporting a confirmed polio case should be extensively publicized, especially to health workers to increase their interest overall and, particularly,

to increase their motivation to report promptly and obtain stool samples promptly. This should be particularly useful in areas which have apparently been free of polio for some time. Rotary Clubs may be important means of disseminating this information.

4. It is highly likely that paralytic polio is being overdiagnosed in the Region because of the large number of "probable" cases which are ultimately classified as "confirmed" because they do not have adequate diagnostic specimens collected and tested or because they are lost to follow-up or die. To remedy this problem several steps are proposed:

   a. Increased emphasis must be placed on adequate and timely collection and submission of stool specimens. This may be particularly important in obtaining post-mortem specimens, in which pathological specimens are also important.

   b. Most importantly, the final case classification of polio should be revised. In preliminary reporting, the term "acute flaccid paralysis" should be used instead of "probable polio". However, it is in the final classification of cases that most change needs to be made and the following classification is proposed:

      i. **Confirmed poliomyelitis** - Acute paralytic illness associated with the isolation of wild poliovirus, irrespective of residual paralysis.

      ii. **Vaccine-associated poliomyelitis** - Acute paralytic illness in which vaccine virus is believed to be the cause of the disease. Vaccine-associated cases should be reported separately. They are not considered to be the same as confirmed polio with wild poliovirus isolates.

      iii. **Not poliomyelitis** - Acute paralytic illness in which at least two adequate stool specimens have been obtained within two weeks after onset of symptoms and have been found negative for poliovirus. Aliquots of the original samples should be held at the laboratory for possible future use. To ensure the accuracy of this categorization, any patient who dies, is lost to follow-up, or who has residual paralysis at 60 days should have aliquots of the original specimens examined in two other laboratories in the network, using all appropriate techniques. If the specimens were adequate and all are negative, even these patients will be considered as "not polio" and will be "discarded". This classification represents a major change from the current system.

      iv. **Polio compatible** - Acute paralytic illness with compatible residual paralysis at 60 days, or death or loss to follow-up in which there were not at least two adequate stool specimens obtained within two weeks after onset of symptoms and examined in three different laboratories. This should be a very small proportion of cases.

   c. Major emphasis must be placed on ensuring timely and regular reporting from <u>all</u> reporting sites in a given area (municipio, district, state, or country). Only when at least 90% of all sites are reporting negatively on a weekly basis, can confidence be placed on the apparent absence of acute flaccid paralysis.

   d. Further diagnostic techniques should be developed and used to diagnose and distinguish between polio and Guillain-Barre Syndrome. Studies should be encouraged in other parts of the world to determine the excretion patterns of poliovirus in polio patients by, for example, taking daily stool specimens over the course of one month. In addition, development should proceed on serological tests capable of differentiating between wild

virus-induced and vaccine virus-induced antibodies. Further studies on enterovirus-associated paralytic illness are also warranted. To improve comparative analysis of case information, the final diagnosis (and clinical information) of all "discarded" cases should be submitted to the Regional office. Studies are warranted to determine the expected rate of acute flaccid paralysis in different sub-Regions.

5. The TAG is concerned about the ability of several countries to achieve and document the eradication target unless significant new efforts are undertaken. These countries include Mexico, Venezuela, Bolivia, Brazil, Haiti, and Peru. Specific activities include increasing vaccine coverage, expansion of surveillance systems to include prompt reporting from at least 90% of the reporting units, and social mobilization or promotion to assure that the population is aware of eradication efforts.

6. Recommendations of the Laboratory Network (see EPI/TAG8/90-16) should be implemented.

7. Anticipating successful achievement of the eradication target, an independent Commission should be formed and charged with developing criteria for certification of eradication.

8. As the Americas approach eradication of polio, direct attention must be given to other diseases which are preventable by immunization. As a start, the TAG recommends that the added focus of attention should be neonatal tetanus and measles as described in the concept paper developed by PAHO and the ICC Member agencies should continue to support these efforts. We must not neglect the immediate target of polio eradication, nor should we fail to use the lessons learned to address other diseases vigorously.

   a. Neonatal tetanus represents totally preventable morbidity and mortality. Universal immunization with tetanus toxoid of women of childbearing age can prevent this terrible health burden. Like other vaccine-preventable diseases, neonatal tetanus does not occur throughout the population uniformly. Several countries showed that surveillance information can be used to identify high-risk areas to focus programmatic efforts. A number of countries demonstrated that available information on neonatal deaths and cases reported, prenatal care, and the occurrence of missed opportunities, help design intervention strategies.

      Countries that have already identified high-risk areas for neonatal tetanus should implement vaccination of all females of childbearing age including pregnant women any time during pregnancy, starting in the first trimester. Each woman should receive at least two doses of tetanus toxoid. Careful attention should be paid to surveillance of cases of neonatal tetanus, vaccine utilization, and eliminating missed opportunities. Each detected case represents a program failure and should be evaluated to determine how best to improve control. Other countries should begin the evaluation of available information to identify the highest risk areas, followed by interventions to prevent the disease.

   b. In recent years, measles vaccine coverage in many countries of the hemisphere has increased and the overall impact has been demonstrated overall with decreasing cases reported, changes in the age distribution of cases, and increasing interval between epidemics. Despite the occurrence of epidemics of measles, it should be remembered that in the absence of vaccination, the number of cases expected annually would approximate 95% of the number of births. Nevertheless, the number of cases reported in 1989 in some countries of the hemisphere has been unusually high compared to recent years. This raises questions concerning what should be the appropriate future strategy for measles control or elimination.

The TAG recommends that all countries make efforts to improve coverage for measles vaccine to the highest possible level. Between now and the next meeting of the TAG, studies should be undertaken to develop the information base needed to make recommendations concerning strategies for control of measles outbreaks.

Experience in some countries has shown that where coverage is below 90% efforts to control outbreaks represents is a diversion of scarce resources that could better be used for improving coverage either through mass vaccination days or institutional delivery. However, this issue deserves review and data from current outbreaks should be collected and analyzed. Experience with mathematical models may be useful in developing the strategy.

9. Further studies of missed opportunities and innovative approaches to reduce these system failures (such as carried out in El Salvador and Colombia) should be aggressively pursued by all countries.

10. The TAG should meet again in 6-9 months to review progress in implementing these recommendations, plans for certification of the eradication program, and further activities needed to bring about satisfactory control of the other vaccine-preventable diseases, particularly neonatal tetanus and measles.

III. STATUS OF EPI AND POLIO ERADICATION IN LATIN AMERICA AND THE CARIBBEAN

During 1989, there were 105 587 cases of measles, 955 neonatal tetanus, 983 cases of diphtheria, and 20 358 cases of whooping cough reported in Latin America and the Caribbean (Tables 1 and IA). Coverage figures showed an overall increase with respect to 1988 (Tables 2 and IIA).

Table 1.
Reported Cases of EPI Diseases
Latin America and the Caribbean, 1989

Region	Measles	Neonatal Tetanus	Diphtheria	Whooping Cough
Andean Region	23 922	420	61	3 666
Brazil	18 783	295	836	10 747
Central America	25 460	82	0	555
English Caribbean	---	---	---	---
Latin Caribbean	1 195	12	25	369
Mexico	20 076	35	6	1 468
Southern Cone	16 151	111	55	3 553
TOTAL	**105 587**	**955**	**983**	**20 358**

--- Data not available.

Table 2.
Vaccination Coverage in Children Under One Year of Age
Latin America and the Caribbean, 1988 and 1989

Region	Population under one yr 1989	% OPV3		% DPT3		% Measles		% BCG	
		1988	1989	1988	1989	1988	1989	1988	1989
Andean Region	2 661 002	71	71	61	61	58	61	72	76
Brazil	3 617 900	89	96	54	51	60	56	67	66
Caribbean	121 800	79	82	78	82	71	71	87	95
Central America	999 973	68	72	63	65	67	68	66	77
Latin Caribbean	591 536	69	73	61	63	58	57	61	58
Mexico	2 579 200	95	96	60	65	70	85	73	80
Southern Cone	1 125 627	91	83	82	79	86	79	95	91
TOTAL	**11 697 038**	**84**	**86**	**61**	**61**	**64**	**67**	**71**	**74**

As of March 3, 1990, of the 2 074 cases of flaccid paralysis reported in the Region during 1989, 133 had been confirmed as polio, 1 866 discarded and 75 were still pending final classification (Table 3). The rates of acute flaccid paralysis among children under 15 years of age varied from 1.7 per 100 000 for Central America, to 0. 2 per 100 000 in the Latin American Caribbean. The overall rate of cases of acute flaccid paralysis for the Region of the Americas per 100 000 children under 15 years of age was 1.05 in 1989.

Table 3.
Total Cases of Flaccid Paralysis Reported and Final Classification

Country	Reported	Confirmed Polio	Discarded	Pending Classification
Argentina	79	0	68	11
Bolivia	20	2	16	2
Brazil	917	37	829	51
Chile	- - -	- - -	- - -	- - -
Colombia	210	17	190	2
Costa Rica	7	0	7	0
Cuba	- - -	- - -	- - -	- - -
Dominican Republic	14	0	14	0
Ecuador	44	3	38	3
El Salvador	60	2	58	0
Guatemala	98	3	94	1
Haiti	14	2	8	4
Honduras	73	2	71	0
Mexico	222	27	195	0
Nicaragua	16	0	16	0
Panama	13	0	13	0
Paraguay	11	0	11	0
Peru	155	16	139	0
Uruguay*	8	1	7	0
Venezuela	113	21	92	0
TOTAL	2074	133	1 866	75

* Confirmed case is vaccine-related

TABLE 1-A

REPORTED CASES OF EPI DISEASES
AMERICAN REGION, 1988-1989

SUBREGION AND COUNTRY	MEASLES		NEONATAL TETANUS		DIPHTHERIA		PERTUSSIS	
	1989	1988	1989	1988	1989	1988	1989	1988
ANDEAN REGION	23,922	40,923	420	554	61	78	3,666	4,147
Bolivia	484	1,818	86	80	9	9	717	685
Colombia	10,235	15,732	148	193	35	23	1,668	1,994
Ecuador	3,649	7,990	58	128	3	8	256	197
Peru		3,180	84	112	14	36	435	806
Venezuela	9,554	12,203	44	41	0	2	590	465
SOUTHERN CONE	16,151	50,763	39	59	55	153	3,553	4,892
Argentina*	4,009	4,836	---	---	11	8	2,936	3,757
Chile	11,904	45,079	2	5	36	132	206	224
Paraguay	220	772	37	54	8	13	371	886
Uruguay	18	76	0	0	0	0	40	25
BRAZIL	18,783	26,179	295	324	836	1,104	10,747	8,868
CENTRAL AMERICA	25,460	3,108	82	110	0	0	555	1,194
Belize	11	74	0	0	0	0	1	0
Costa Rica	33	358	0	2	0	0	85	95
El Salvador	15,917	787	24	33	0	0	34	46
Guatemala	2,415	182	15	29	---	---	---	725
Honduras	6,653	1,155	19	11	0	0	75	235
Nicaragua	130	167	17	27	0	0	324	63
Panama	301	385	7	8	0	0	36	30
MEXICO	20,076	3,915	35	127	6	2	1,468	693
LATIN CARIBBEAN	1,195	814	12	33	25	75	369	136
Cuba	10	122	0	0	0	0	70	32
Haiti	---	---	---	---	---	---	---	---
Dominican Republic	1,185	692	12	33	25	75	299	104
LATIN AMERICA	105,587	125,702	883	1,207	983	1,412	20,358	19,930
ENGLISH CARIBBEAN	---	---	---	---	---	---	---	---
NORTH AMERICA	17,194	3,678	0	0	5	12	5,504	4,385
Bermuda	---	4	---	0	---	0	---	0
Canada*	958	609	---	---	3	11	1,759	1,106
USA*	16,236	3,065	---	---	2	1	3,745	3,279
TOTAL	122,781	129,380	883	1,207	988	1,424	25,862	24,315

--- Data not available

* Country which does not report cases of neonatal tetanus separately

TABLE 2 -A

VACCINE COVERAGE IN THE REGION OF THE AMERICAS, 1988-1989

REGION & COUNTRY	POPULATION (less than 1 year)		OPV3 %		DPT3 %		MEASLES %		BCG %	
	88	89	88	89	88	89	88	89	88	89
ANDEAN REGION	2,612,613	2,661,002	71	71	61	61	58	61	72	76
Bolivia	263,800	271,200	40	50	39	40	44	70	27	70
Colombia	816,960	834,180	94	93	74	75	74	73	99	90
Ecuador	312,353	316,622	57	64	54	55	52	57	86	92
Peru	665,000	670,000	61	60	61	58	52	52	70	62
Venezuela	554,500	569,000	74	67	56	55	51	50	50	68
BRAZIL*	4,217,375	3,617,900	89	96	54	51	60	56	67	66
CENTRAL AMERICA	978,747	999,973	68	72	63	65	66	67	68	77
Belize	---	---	---	---	---	---	---	---	---	---
Costa Rica	80,500	82,600	86	91	87	89	97	88	87	---
El Salvador	176,102	182,173	63	72	63	64	63	73	56	62
Guatemala	328,000	343,200	58	58	49	52	55	53	41	---
Honduras	191,019	183,600	70	83	74	78	76	86	84	75
Nicaragua	142,600	146,500	83	83	65	64	63	62	89	90
Panama	60,526	61,900	73	72	75	71	75	76	91	90
SOUTHERN CONE	1,139,601	1,125,627	91	83	82	79	86	79	95	91
Argentina	680,000	668,000	91	81	80	74	88	79	100	94
Chile	287,981	279,150	96	94	96	94	95	89	98	99
Paraguay *	118,620	121,877	86	71	56	67	63	58	56	58
Uruguay	53,000	56,600	82	82	82	82	72	76	98	97
LATIN CARIBBEAN	594,713	591,536	69	73	61	63	58	57	61	58
Cuba *	180,400	187,529	98	95	98	95	89	97	100	97
Haiti	201,707	201,707	48	50	49	50	59	31	45	40
Dominican Rep.*	212,606	202,300	65	75	41	47	29	46	43	41
MEXICO	2,100,000	2,579,200	95	96	60	65	70	85	73	80
LATIN AMERICA	11,643,049	11,575,238	84	86	60	61	64	67	71	74
ENGLISH CARIBBEAN	106,194	121,800	79	82	78	82	71	71	87	95
NORTH AMERICA	3,998,000	4,009,000	0	0	0	0	0	0	0	0
Bermuda	---	---	---	---	---	---	---	---	---	---
Canada	358,000	362,000	---	---	---	---	---	---	---	---
USA	3,640,000	3,647,000	---	---	---	---	---	---	---	---
TOTAL**	15,747,243	15,706,038	84	86	60	61	64	67	71	74

--- No data available

* Coverage calculated with two doses of OPV

** TOTAL coverage does not include North America

Source: PAHO

In terms of surveillance indicators, 70% of the cases were reported within 15 days of onset of paralysis. The percentages varied between 50% of all cases reported from the Latin Caribbean and 86% of all cases from the Central American Region.

Confirmed polio cases were detected in 112 (0.7%) of the 14 372 counties ("municipios") in the Region.

In general, the development of the system of negative reporting of acute flaccid paralyses has been very slow in developing and not all countries are giving it a high priority. During 1989, of the 21 Latin American countries, only an average of nine were reporting weekly and the maximum number of sites that reported was 3 847, during week 47. This negative notification is for all cases of acute flaccid paralysis in children under 15 years of age and not for polio cases and should include all sites that are likely to see cases of acute flaccid paralysis. The system should be gradually expanded to cover greater geographic areas. The countries should report to PAHO, by telex or fax, on a weekly basis, the total number of sites that reported during that epidemiological week.

Ten countries (Bolivia, Brazil, Colombia, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Peru and Venezuela) are carrying out "mop-up" operations which have encompassed a total of 892 counties (Table 4).

Table 4.

Summary of Mop-Up Operations

Country	Number of counties covered	Total pop. <5 (target)	Total number of houses visited	Total pop. <5 vaccinated	%	Total pop. vaccinated
Bolivia	9	39 298	27 086	28 817	73	85 753
Colombia	52	582 876	686 021	537 643	92	537 643
Ecuador	40	310 094	385 225	246 464	79	298 431
El Salvador	136	893 436	235 737	429 757	48	781 141
Guatemala*	59	229 767	154 391	195 302	85	247 026
Honduras	304	733 069	322 271	399 269	54	427 535
Mexico	36	703 828	- - -	592 670	84	592 670
Peru*	137	952 414	593 800	689 614	72	1 483 280
Venezuela	119	475 474	408 478	446 432	93	430 466
TOTAL	892	4 920 256	2 813 009	3 565 968	72	4 883 945

--- Data not available.

IV. REPORT OF THE NETWORK LABORATORIES

The members of the laboratory network met 16 to 18 March, 1990, to discuss the results of their activities and the problems encountered to date (See EPI/TAG8/90-16).

V. POLIO EPIDEMIOLOGY

In 1989, 2 074 cases of acute flaccid paralysis were reported, of which 133 were confirmed to be polio. Among the 133 polio cases, 17 were wild virus cases, 9 were vaccine-associated cases; 16 were confirmed because of death; 65 were confirmed because of the presence of residual paralysis 60 days after paralysis

onset without isolation of poliovirus; and 26 were lost to follow-up. Forty-two percent of patients confirmed because of presence sequelae either had no stool sample taken or it was taken more than two weeks after paralysis onset. Evidence to suggest false positivity reporting in patients who died and the high percentage of cases that were inadequately investigated (especially among cases confirmed because of sequelae), highlights the need for every case of acute flaccid paralysis to be aggressively investigated, including timely collection of two stool specimens within 15 days of paralysis onset and taking autopsy specimens from those who died.

The monitoring of national rates of acute flaccid paralysis is the principle manner for evaluating surveillance systems. Due to a wild variation of rates on a state level in Mexico, an investigation was performed to identify if there were other factors influencing rates. Rates of acute flaccid paralysis were found to be positively correlated with a worsening of environmental conditions. Areas with poorer sanitary environments had higher rates of acute flaccid paralysis. A variation of rates between geographic areas may depend on environmental conditions. The grouping of geographical areas by population and environmental characteristics would increase the accuracy or usefulness of using these rates as surveillance indicators. The the combined use of viral isolation rates (as an indicator for stool sample collection) and rates of acute flaccid paralysis can complement one another and aid in directing surveillance activities.

Data available from Brazil's 1 620 notified cases of acute flaccid paralysis during 1987-88 provided an opportunity to develop guidelines for use by national eradication programs with limited resources to focus case investigations on patients with characteristics strongly associated with eventual confirmation, and to reduce false positive diagnostic errors in countries where eradication is imminent. Analysis of sensitivity and specificity of diagnostic predictors for poliomyelitis led to the following conclusions, namely; in countries with endemic polio and limited resources, investigations should be concentrated on cases of acute flaccid paralysis under 10 years which are either hospitalized and/or have initial involvement in one or both lower limbs; and, countries close to eradication should consider discarding cases without laboratory confirmation, in particular those confirmed because of death or loss to follow-up which: were not hospitalized, and/or those without initial involvement in one or both limbs, and/ those lacking sequelae at 60 days.

VI. POLIO IN CANADA, CHINA, USA AND THE U.K.

Since 1980 Canada has had only one case of wild polio virus, while there have been 5 cases of vaccine associated paralysis, therefore concluded that the risk of paralysis attributable to OPV is small when compared to the overall benefit of the vaccine.

China presented data illustrating both the recent advances in vaccine coverage for EPI diseases and the corresponding decreases in disease incidence. Compared to previous years, reported polio cases have been greatly reduced, despite several large outbreaks which occurred during 1989. China has made a strong commitment to eradicate polio by 1995, and presented a group of specific strategies which are being adopted in order to accomplish this goal.

The representative from the United Kingdom presented an analysis of a number of health provider factors associated with vaccination coverage rates, illustrating how the use of vaccination coverage serves as an excellent indicator for the health services.

In the United States, 1979 was the last year for which wild polio virus was isolated. Between 1975 and 1988 a total of 154 cases were classified as paralytic poliomyelitis, however only 10 of these were considered epidemic. After reviewing several options for polio vaccination policy, the Institute of Medicine in the United States concluded that at this time no change is recommended in a program that has worked so well.

VII. NEONATAL TETANUS

Studies have been done in eleven countries, yielding data that indicate that 73% of the neonatal tetanus cases known occurred in 8% of the geographic units (municipios, distritos), where 21% of the total of women of childbearing age live. Control measures (epidemiological surveillance and vaccination of women of childbearing age) have started in some of these countries in their respective high risk areas.

Bolivia, Colombia and Guatemala presented results of 1989 vaccination of women of childbearing age and case investigation. During 1990, Mexico will broaden existing studies to identify high risk areas and vaccinate women of childbearing age. Haiti presented improvements in the use of this methodology, where they have added other neonatal pathologies as case controls.

VIII. MEASLES

Country reports and available data demonstrate that measles is endemic in all subregions of the Americas. Attack rates by age group and mortality vary considerably from one country and region to another.

The widespread use of vaccine that resulted from the establishment of the EPI in 1977, has produced a significant reduction in measles morbidity and mortality, as well as improvements in epidemiological surveillance. Also, the disease has changed from endemic to epidemic, interepidemic periods have grown longer, attack and mortality rates among younger children have increased - especially in those under one year of age and between one and four years. Mostly in the U.S.A., there have also been more cases among older children and cases have occurred in previously vaccinated children. Although the morbidity and mortality associated with these epidemics is lower than in previous years, they should be considered program failures.

Given the analysis of recent outbreaks, the following points were elaborated to aid in the management of future outbreaks with the possible elimination of the disease in view:

- Ensure that every child is immunized as soon as he or she reaches the appropriate age;
- Utilize all vaccination strategies available;
- Focused interventions should be directed at unimmunized children;
- Reduce missed vaccination opportunities;
- Ensure that health services offer vaccination during every visit;
- Instruct health workers that a vaccine vial should be opened even if only for one child;
- During outbreaks, if a high proportion of cases fall in children under nine months of age, the minimum vaccination age could be **temporarily** lowered to six months, as long as these children are revaccinated at nine months of age.
- Standardize case definitions;
- Collect useful epidemiological information;
- Use age-specific attack rates to analyze measles data;
- Use outbreaks to identify weaknesses and propose measures for overall program improvement;
- Utilize communication media in a constructive manner.

The experience gained by the English-speaking Caribbean and other countries developing an elimination program will be essential to the implementation of strategies that will allow other countries to consider elimination plans. Nevertheless, the technical obstacles that must be overcome in order to reach this objective should not be forgotten.

Until now, one of the major obstacles faced by the Region of the Americas is inadequate vaccination coverage, especially in periurban areas and inaccessible rural areas.

Other obstacles to measles elimination are basically related to the political and social will necessary to launch the goal, administrative and management problems, vaccine efficacy at an early age, the methodology for its administration (syringes and needles) and the inadequacy of epidemiological surveillance for the disease.

Hopefully, the vaccine with higher viral concentration (Edmonston-Zagreb strain) will help overcome the hurdle posed by maternal antibodies that hinders the use of early vaccination of children before nine months of age, and disease control will be easier.

Research on new methods of application will be necessary to facilitate program logistics.

Finally, the epidemiological surveillance system developed for the eradication of poliomyelitis, including the laboratory network could be used to improve and perfect the necessary surveillance for a future attempt at measles elimination.

IX. HEPATITIS B

A group of experts met on 18 March, to discuss the feasibility of establishing immunization programs against hepatitis B virus within the EPI (See EPI/TAG8/90-17). They discussed and reviewed the epidemiology of hepatitis B in the Region of the Americas, the overall impact of the disease, analyzed the costs and benefits of the introduction of the vaccine within the EPI, and discussed vaccination strategies. Several pilot studies that have taken place in Brazil, Colombia, Costa Rica, Jamaica, Honduras, Mexico, Venezuela, and Trinidad were reviewed and discussed. Future projects and the implications of widening the use of the vaccine were considered and several recommendations were made.

X. IMMUNIZATION AND AIDS

The presentation on the interaction of human immunodeficiency virus (HIV) infection and immunizations made the following points: 1) rates of HIV infection among young children are substantial in some geographic areas and likely to increase in the future; 2) because of HIV and other blood-borne infections, **every dose of parenteral vaccines must be administered with a sterile needle and a sterile syringe**; 3) HIV-infected children have more severe clinical illness with measles and higher risk of developing tuberculosis than children who are not infected; 4) all EPI vaccines can be safely administered to children with asymptomatic HIV infection and all, except BCG, to children with AIDS or other clinical illness associated with HIV infection; and 5) most children with HIV infection respond to vaccination but, overall, the response of such children is less than HIV negative children. Response to vaccination declines as clinical illness increases. Therefore, routine EPI immunizations should be given to children who may be HIV-infected as early as recommended by the vaccination schedule to maximize protection.

ANNEXES

1. AGENDA

VIII REUNION DEL GRUPO TECNICO ASESOR (GTA) DEL PAI Y ERRADICACION DE LA POLIO

19 al 22 Marzo de 1990
Ciudad de México, México

AGENDA

19 de Marzo, Lunes

8:00 Inscripción

8:30 Apertura
Dr. Juan Manuel Sotelo, Representante de la OPS en México
Dr. D.A. Henderson, Presidente del GTA del PAI
Dr. Jesús Kumate, Secretario de Salud, México

8:50 Comentarios de las Agencias Participantes
AID - Sr. J. Thomas
Rotary International - Sr. M. McQuestion
UNICEF - Dr. J. Aguilar

9:15 Situación Regional del PAI y Erradicación de la Polio
Dres. Ciro de Quadros y Jean-Marc Olivé

10:15 Café

10:45 Situación Mundial del PAI y Erradicación Global de la Polio
Dr. N. Ward

11:15 Informe de México
Dr. M. A. Lezana

12:00 Almuerzo

13:30 Informes de Centroamérica y el Caribe
13:30 El Salvador - Dr. S. Almeida
13:50 Guatemala - Dr. J. Luna
14:10 Honduras - Lic. R. Durón
14:30 Haití - Dr. J. André
14:50 Jamaica - Dr. P. Figueroa
15:10 Suriname - Dr. D. Retfeld

15:30 Café

16:00 Discusión

16:30 Informe de Brasil
Dra. C. Pedreira

17:00 Discusión

17:30 Cierre del Día

20 de Marzo, Martes

8:00 Informes del Area Andina
8:00 Bolivia - Dr. R. Vargas
8:30 Colombia - Dres. J. Avendaño y M. Gacharna
9:00 Ecuador - Dres. J. Moreta y O. Barrezueta
9:30 Perú - Dr. R. Espinoza
10:00 Venezuela - Dr. H. Paublini

10:30 Café

11:00 Discusión

11:30 Informe del Cono Sur
Dra. M. Eiman

11:40 Discusión

12:00 Informe de los Laboratorios
Overview - Dr. C. Silveira

12:30 Almuerzo

14:00 Informe de los Laboratorios
14:00 Epidemiología Molecular - Dr. O. Kew
14:30 Circulación de Poliovirus en el Ambiente - Dres. E. Márquez y E. da Silva

15:00 Discusión

15:30 Café

16:00 Epidemiología de la Polio
16:00 Clasificación final y características de los casos confirmados en 1989 - Dr. J. Andrus
16:30 Características asociadas a la confirmación de casos - Dr. R. Biellik
16:50 Incidencia de Parálisis flácida en México - Dr. V. Dietz
17:10 Discusión

17:45 Cierre del Día

21 de Marzo, Miércoles

8:00 Notificación Negativa de Parálisis Flácida - Actualización
Dr. J-M. Olivé

8:30 Poliomielitis en Canadá, China, EUA y Reino Unido
8:30 Canadá - Dr. P. Varughese
8:45 China - Dr. Wang Ke An
9:05 EUA - Dr. S. Cochi
9:45 Reino Unido - Dr. D. Salisbury

10:00 Discusión

10:15 Café

10:45 El Control del Tétano Neonatal
10:45 Estrategia Regional - Dr. C. de Quadros
11:00 Bolivia - Dr. R. Vargas
11:15 Colombia - Dr. G. Gacharna
11:30 Guatemala - Dr. O. Zeissig
11:45 México - Dr. J. Fernández de Castro

12:00 Discusión

12:30 Almuerzo

14:00 Sarampión
14:00 Situación Regional - Dr. J-M. Olivé
14:15 Cuba - Dr. M. Galindo
14:30 EUA - Dr. W. Orenstein
14:45 Guatemala - Dr. O. Zeissig
15:00 Honduras - Lic. R. Durón
15:15 México - Dr. J. Fernández de Castro

15:30 Café

16:00 Eliminación del Sarampión en el Caribe Inglés
Dr. C. de Quadros
Dr. P. Figueroa

16:20 Hepatitis B - Actualización
16:20 Situación Regional -Dr. F. Pinheiro
16:45 La Vacuna e Inmunología - Dr. C. Shapiro
17:00 La Política del PAI -Dr. C. de Quadros
17:15 Discusión

17:30 Cierre del Día

22 de Marzo, Jueves

8:00 Operación Limpieza en Buenos Aires: Experiencia Rotaria

8:30 Inmunización y SIDA: Actualización
Dr. S. Jones

8:50 La Segunda Década del PAI en las Américas
Dr. C. de Quadros

9:15 Presentación y Discusión del Informe Final

10:30 Café

11:00 Clausura
Dr J. Yunes

2. LIST OF PARTICIPANTS

LIST OF PARTICIPANTS

1. MEMBERS OF THE TECHNICAL ADVISORY GROUP

Hilda Alcalá
Hospital Infantil de México, SSA
Dr. Márquez 162
Col. Doctores
06720 México, D.F.

José Manuel Borgoño
Profesor de Salud Pública
Facultad de Medicina Universidad de Chile
451 Avda. Lyon
Santiago, Chile

Donald A. Henderson, Chairman
Dean, School of Public Health and Hygiene
The Johns Hopkins University
Baltimore, Maryland

Alan Hinman, Rapporteur
Director, Division of Immunization Services
Centers for Disease Control
Atlanta, Georgia

Ciro A. de Quadros, Secretary
Regional Adviser
Panamerican Health Organization
Washington, D.C. 20037

2. MEMBERS OF THE EPI GLOBAL ADVISORY GROUP

David M. Salisbury
Senior Medical Officer
Department of Health
London, United Kingdom

3. COUNTRIES

3.1 ARGENTINA

Oscar Fay
Director, Centro de Tecnología en Salud Pública
Suipacha 531
Rosario, Argentina

Mirtha Lucy Eiman Grossi
Jefa Area Vigilancia Epidemiológica
Ministerio de Salud y Acción Social
Defensa 120, 4° piso, oficina 4013
Buenos Aires, Argentina

Enrique E. Granado
Ministerio de Salud y Acción Social
Defensa 120, 4° piso, oficina 4013
Buenos Aires, Argentina

3.2 BOLIVIA

Roberto Vargas S.
Director Nacional de Epidemiología
Ministerio de Salud de Bolivia
Calle Capitán Ravelo 2199
La Paz, Bolivia

3.3 BRAZIL

José C. da Fonseca
Professor
Fundacao Universidade do Amazonas
Rua Huascar de Figueiredo, 35
Manaus - Amazonas
Brazil, CEP 69013

Lucía H. de Oliveira
Técnica GT/Polio
Ministerio da Saúde
Esplanada dos Ministerios BLG 824
Brasilia, Brasil CEP 70058

Gabriel Oselka
Presidente Comissao Revisao de Casos de Poliomielitis
Secretaria da Saúde
R. Aimberé, 1898/52
Sao Paulo 01258
Sao Paulo, Brazil

Maria Cristina Pedreira
Técnica GT/Polio
Ministerio da Saúde
Esplanada dos Ministerios BLG 824
Brasilia, Brasil CEP 70058

3.4 CANADA

Paul V. Varughese
Health & Welfare Canada
Laboratory Centre for Disease Control
Ottawa, Canadá

3.5 CHINA

Dai Changli
Director
Department of Health and Anti-epidemic
1b Bei Zhem Road
Chemg sha, China

Li Hui Fang
Deputy Division Chief
Mopu China
44 Hou Hai Bei Yam
Beijing, China

Li Fangjun
Deputy Director
EPI Department of Anhui Provincial Anti epidemic Station
125 Wuhn Road
Hefei, China

Chu Jin Gui
Vice Director
Hebei Provincial Sanitatin Anti-epidemic Station
18 Hong Qi Road
Baoding Hebei, China

Wang Kean
Vice President
Chinese Academy of Preventive Medicine
10 Tian Tan Xi Li
Beijing, China

Diao Liandong
Deputy Director
Department of EPI of Jiangsu Provincial Level
172 Jiangsu Road
Nam Jing, China

Xue Puying
Programme Officer
Dept. of Foreign Affairs.
Ministry of Public Health
44 Houhai Beiyan
Beijing, China

Yu Wenping
Shandong Provincial Anti-epidemic Station, P.R. China
20 Jingshi Road
Jinan, Shandong, China

Ze Wenyuan
Director Senior Research
National Vaccine & Serum Institute
Beijing, China

Tuyahong Yacufu
Director
Bureau Public Health Xinjianguygur Autonomous Region
66 Long Quan Street
Uramechi, China

3.6 COLOMBIA

Jaime Avendaño
Jefe PAI
Ministerio de Salud
Calle 16 N° 79 of 501
Bogotá, Colombia

Manuel G. Gacharná Romero
Director de Epidemiología
Ministerio de Salud
Calle 55 N° 1032, 2° piso, Bloque B
Bogotá, Colombia

3.7 COSTA RICA

Leonardo Maranghello
Director Sistema de Vigilancia Epidemiológica
Ministerio de Salud
San José, Costa Rica

Kirsten A. Visona
Coordinador Nacional Centro de Investigación
LSV-ICMRT
Apt. 10155
San José, Costa Rica

3.8 CUBA

Miguel Angel Galindo Sardiña
Jefe PAI
Ministerio de Salud
234 N Zona 4
Cuba

3.9 DOMINICAN REPUBLIC

Sofía Peguero
Encargada Vigilancia Epidemiológica PAI
Secretaría de Salud Pública
Av. San Cristóbal esq. Tiradentes
Santo Domingo, República Dominicana

3.10 ECUADOR

Jacobo Moreta
Jefe PAI
Ministerio de Salud Pública
Buenos Aires 340 y Juan Larrea
Quito, Ecuador

3.11 EL SALVADOR

Santiago Almeida
Jefe Unidad de Epidemiología
Ministerio de Salud
San Salvador, El Salvador

3.12 GUATEMALA

Carlos Ramírez
Neurólogo Pediatra Consultor
Oficina Sanitaria Panamericana
Guatemala, Guatemala

Otto Zeissig
Jefe División Vigilancia y Control de Enfermedades
Ministerio de Salud Pública y Asistencia Social
9a. Av. 14-65, Zona 1
Guatemala, Guatemala

3.13 GUYANA

Rudolph Cummings
MCH Officer
Ministry of Health
Brickdam
Georgetown, Guyana

3.14 HAITI

Jean André
Coordinador del PAI
Ministerio de Salud Pública
Unidad de Coordinación de los Programas Prioritarios
Bureau de Coordinación, Programa de Vacunación
Puerto Príncipe, Haití

3.15 HONDURAS

Regina Durón
Asistente Técnico PAI
Ministerio de Salud Público
División de Salud Materno Infantil
Tegucigalpa, Honduras

3.16 INDIA

Vinohar Balraj
Polio Control Project Office
CMC Hospital
Vellore 632004, India

3.17 JAMAICA

John Peter Figueroa
Principal Medical Officer (Epidemiology)
Ministry of Health
Epidemiology Unit
30-34 Half-Way Tree Road.
Kingston 6 Jamaica

3.18 MEXICO

Dionisio Aceves
Director de Normas para la Prevención de Enfermedades Infecciosas
Secretaría de Salud
San Luis Potosí 199, 8° piso
México, D.F.

José Luis Díaz-Ortega
Jefe del Depto. de Investigación Experimental
Dirección General de Epidemiología
Secretaría de Salud
Aniceto Ortega 1321, 5° piso
Col. Del Valle
03100 México, D.F.

Celia Escandón
Subjefa de Medicina Preventiva
Instituto Mexicano del Seguro Social
Av. Cuauhtémoc 451, 10° piso
México, D.F.

Jorge Fernández de Castro
Director General de Medicina Preventiva
Secretaría de Salud
San Luis Potosí 199
México, D.F

Juan A. Herrera Mora
Jefe de Servicios Medicina Preventiva
Instituto de Servicios y Seguridad Social para los Trabajadores del Estado
México, D.F.

Jesús Kumate
Secretario de Salud
Lieja 7
México, D.F.

Miguel Angel Lezana
Director de Información
Secretaría de Salud
Aniceto Ortega 1321, 6° piso
03100 México, D.F

Raúl Montesano
Subdirector de Emergencias Epidemiológicas
Dirección General de Epidemiología
Aniceto Ortega 1321, 6° piso
03100 México, D.F.

Ramiro Moreno Ponce
Director de Comercialización Gerencia de Biológicos
Secretaría de Salubridad y Asistencia
Amores 1240
Col. Del Valle
03100 México, D.F.

Luis Enrique Sánchez Torres
Gerente General de Biológicos
Secretaría de Salud
Amores 1240
Col. Del Valle
03100 México, D.F.

Jaime Sepúlveda Amor
Director General de Epidemiología
Secretaría de Salud
Aniceto Ortega 1320
Col. Del Valle
03100 México, D.F.

José Villasana
Subdirector Enferemedades Prevenibles por Vacunación
Secretaría de Salubridad
San Luis Potosí 199, Col. Roma
México, D.F.

3.19 NICARAGUA

Jeaneth Chavarría
Directora Nacional de Enfermedades Transmisibles
Ministerio de Salud
Complejo Concepción Palacios
Managua, Nicaragua

3.20 PANAMA

Gloria G. García
Coordinadora Nacional del PAI
Ministerio de Salud
Apartado 2048 Panamá 1, Panamá

3.21 PARAGUAY

Silvio Ortega
Director del Instituto de Medicina Tropical (LACIMET)
Ministerio de Salud
Venezuela y Florida
Asunción, Paraguay

3.22 PERU

Patricia Campos
Neuróloga
2 de Mayo 649
San Isidro
Lima, Peru

Rubén Enrique Espinoza
Director General del PAI
Ministerio de Salud
Av. Salaverry Cda. 8 s/n
Lima, Perú

3.23 SURINAME

Denis Ritfeld
Bureau of Public Health
22 Rode Kruisloan
Paramaribo, Suriname

3.24 UNITED STATES OF AMERICA

Dr. Kenneth Bart
Office of the Assistant Secretary
National Program on Vaccines
Department of Health and Human Services
5600 fisher Lane, 13A53
Rockville, Maryland 20817

Steve Cochi
Division of Immunization, CDC
Atlanta, Georgia 30333

Stephen Hadler
Division of Immunization, CDC
Atlanta, Georgia 30333

Steve Jones
Medical Epidemiologist
Atlanta, Georgia 30333

Walter Orenstein
Director, Division of Immunization, CDC
Atlanta, Georgia 30333

Craig Noah Shapiro
Epidemiologist, CDC
Atlanta, Georgia 30333

3.25 URUGUAY

Sergio Curto
Responsable PAI en Uruguay
Ministerio de Salud Pública
Av. 18 de julio 1892, Of. 403, PH
Montevideo, Uruguay

3.26 VENEZUELA

Francisco Araoz
Jefe División de Enfermedades Transmisibles
Ministerio de Salubridad y Asistencia Social
Centro Simón Bolívar, piso 7, Of. 731, El Silencio
Caracas, D.F., Venezuela

Hernán R. Paublini
Coordinación Nacional de Erradicación de la Poliomielitis
División de Enfermedades Transmisibles y Accidentes
Ministerio de Sanidad y Asistencia Social
Edificio Sur, Piso 7, Of. 731
Centro Simón Bolívar
El Silencio, Caracas 1010A
Venezuela

4. AGENCIES

4.1 Department of Health and Human Services, USA

Kenneth Bart
Office of the Assistant Secretary
National Vaccine Program
5600 Fishers Lane, Rm. 13A53
Rockville, Maryland 20817

4.2 Rotary International

Ramón Alcerro
Apartado Postal C-184
Comayagüela, M.D.G.
Honduras

José Ignacio Carreño
Coordinador Nacional Polio Plus Rotary
Casilla 3532
La Paz, Bolivia

Jorge Elías Costa
Asesor Programa Polio Plus
Giribone 1372, 1°C
Buenos Aires, Argentina

Alberto Delgadillo
Presidente Comité Nacional Polio Plus de Colombia
Transversal 30 No. 120 - 09
Bogotá, Colombia

Gustavo Gross
Presidente del Comité de Inmunizaciones
Casilla 413
Lima 100, Peru

Vincenzo Ianetti
Gobernador
Rotary International
Av. La Higuera
Villa Valentine
Colon Tochine, Venezuela

Michael McQuestion
Supervisor Programa Polio Plus
1560 Sherman Avenue
Evanston, Illinois 60201

Joaquín Morazán
5a. Calle Poniente 5328
San Salvador, El Salvador

Mim Neal
Manager, Media Relations
1560 Sherman Ave.
Evanston, Illinois 60201

Rubén Ojeda
Presidente Rotary Club de Antimano
Apartado Correos 66665
Caracas, Venezuela

Alfredo Rincón
Director
Apartado Aéreo 30063
Barranquilla, Colombia

José I. Rodríguez Escalante
Gobernador Rotary International
Alsine 1476, 7° 26 (1088)
Buenos Aires, Argentina

Jaime Rumbea
Coordinador Area 5 Distrito 440 Polio Plus
Apartado Postal 2211
Guayaquil, Ecuador

Archimedes Theodoro
Presidente del Comité Nacional Polio Plus - Brasil
R. Goncalves Dias 3144/302
30140 Belo Horizonte, M.G. Brasil

Nesly Vastey
Rotary Coordinator Polio-Plus
BP 13068 Delmas
Haití, W.I.
Puerto-Príncipe, Haití

Luciano Vélez
Presidente Comité Nacional Polio
Clínica Soma 308, La Playa 45-93
Medellín, Colombia

José Fernando Verani
Asesor Regional Polio Plus
Rua Leopoldo Bulhoes, 1.480
Manguinhos, Río de Janeiro
Brasil

4.3 UNICEF

Juan R. Aguilar
Asesor Regional de Salud
Apdo. 7555
Bogotá, Colombia

Rodrigo Arboleda
Oficial de Inmunizaciones, Supervivencia y Desarrollo Infantil
Paseo de la Reforma 645
México, D.F.

Jorge Jara
Representante del UNICEF
Paseo de la Reforma 645
México, D.F.

Guillermo Varela
Oficial de Proyectos
Carrera 13 #75-74
Bogotá, Colombia

4.4 USAID

Héctor Nava
Asistente de Programas
A.I.D.
Embajada de los Estados Unidos en México
México, D.F.

John H. Thomas
Bureau for Latin America & Caribbean
LAC/DR/HPN, Department of State
Washington, D.C. 20523

4.5 World Health Organization

Dale J. Hu
Geneva, Switzerland

Julie B. Milstien
Geneva, Switzerland

Nicholas A. Ward
Geneva, Switzerland

5. LABORATORIES

5.1 CAREC, Trinidad and Tobago

Barbara Hull
Virologist
P.O. Box 164
Port-of-Spain, Trinidad, W.I.

5.2 CETESB, Sao Paulo, Brasil

Elizabeth Marques
Environmental Virologyst
Av. Professor Frederico Hermann Jr., 345
Sao Paulo - S.P. CEP 05489 Brasil

5.3 Centers for Disease Control, USA

Lina De
PAHO7CDC
Atlanta, Georgia 30333

Milford Hatch
PAHO Laboratory Advisor
Atlanta, Georgia

Olen Kew
Chief Molecular Virology Laboratory
Division of Viral Diseases
Atlanta, Georgia 30333

Mark Alan Pallansch
Chief, Enterovirus Section
Atlanta, Georgia 30333

5.4 Fundacao Oswaldo Cruz, Río de Janeiro, Brasil

Edson da Silva
Pesquisador Adjunto-Lab. Enterovirus
Avenida Brasil 4365 CEP 21040
Río de Janeiro, Brasil

Hermann Shatzmayr
Jefe del Departamento de Virología
Avenida Brasil 4365 CEP 21040
Río de Janeiro, Brasil

5.5 INCAP, Guatemala

Patricia Cáceres
Microbiólogo
Apartado Postal 1188
Guatemala, Guatemala

José Ramiro Cruz
Jefe, Programa de Infección, Nutrición e Inmunología
Apartado Postal 1188
Guatemala, Guatemala

5.6 Instituto Nacional de Higiene, Venezuela

Rosa Alba Salas
Instituto Nacional de Higiene "Rafael Rangel"
Ciudad Universitaria
Caracas, Venezuela

5.7 Instituto Nacional de Microbiología
"Dr. Carlos G. Malbrán", Argentina

Cecilia Freyre
Jefa División Diagnóstico de Virus
Vélez Sarsfield 563
Buenos Aires, Argentina

Paula J. Padula
Profesional Principal Investigador CONICET
Vélez Sarsfield 563
Buenos Aires, Argentina

5.8 Instituto Nacional de Salud (INS), Colombia

Jorge Boshell
Jefe, Grupo de Virología
Apartado Aéreo 80080
Bogotá, Colombia

Dioselina Peláez Carvajal
Bacterióloga, Laboratorio de Virus
Avenida El Dorado con Cra 50. CAN.
Bogotá, Colombia

5.9 Instituto Nacional de Diagnóstico y
Referencia Epidemiológica (INDRE), México

Enid Eunice Argott Ramírez
Jefe de Laboratorio de Polio
Carpio 470
México, D.F.

Juan Ruiz Gómez
Director del Laboratorio Nacional
Sector Salud - México
Calzada de Tlalpan y Periférico
México, D.F.

6. PAN AMERICAN HEALTH ORGANIZATION

Guillermo Aldana
USA

Robin Biellik
Brasil

Jeannette Bolaños
USA

Rosa María De Welles
Perú

Peter Carrasco
USA

Carlos Castillo Solórzano
USA

Cristina Nunes da Cunha
Guatemala

Vance Dietz
México

Roxane Eikhof
USA

Dan Epstein
USA

John Fitzsimmons
USA

Carlos Gaggero
USA

Bernardus Ganter
Colombia

Salvador García
Haití

Mauricio Landaverde
Bolivia

Jean-Marc Olivé
USA

Francisco Pinheiro
USA

Henry C. Smith
CAREC

Juan Manuel Sotelo
México

Julio Vizcarra
USA

Joao Yunes
USA

Fernando Vargas
USA

6.1 National Consultants

Oswaldo Barrezueta
Ecuador

Percy Halkyer Belaunde
Bolivia

Jorge Mario Luna
Guatemala

Josefina Martínez
República Dominicana

Genoveva Morales
El Salvador

Fidel Moreno
Paraguay

Rodrigo Rodríguez
Colombia

Edgar Umaña
Honduras

Hugo Vilchis
México

6.2 International Consultants

Jon Andrus
USA

Sandra da Silveira
Ecuador

José Cassio de Moraes
Venezuela

James E. Cheek
CAREC

Armin Fidler
USA

Airton Fischmann
Venezuela

Fernando Laender
México

Eduardo Ponce Maranhao
México

James Rust
USA

Claudio Marcos Silveira
USA

Marc Strassburg
USA

Gina Tambini
El Salvador

7. INTERPRETERS

Carmen Bancalari
María Cristina del Castillo
Olivia Louzau

8. SECRETARIES, AIDES AND TRANSLATORS

Elidée Abreu
Yolanda Amador
Caterina Aruffo
Cecilia Avila
Esperanza Ayón

Alejandro Cunille
Carlos Haubi
Teresa Aceves de Luna
Lorenza Maza
Nuria Parés
Sonia Rangel
Rocío Segui
Elena M. Uranga
Adriana Vincent

9. TECHNICIANS

Humberto Gacelis
Guillermo Gutiérrez
Leopoldo Hernández
Jaime Jiménez
Luis Arturo Rodríguez

3. REPORTED CASES OF EPI DISEASES REGION OF THE AMERICAS, 1988 AND 1989

TABLA 1

CASOS NOTIFICADOS DE ENFERMEDADES DEL PAI

(Country or Region), 1989

SUBREGION Y PAIS	SARAMPION		TETANOS NEONATAL		DIFTERIA		TOS FERINA	
	1989	1988	1989	1988	1989	1988	1989	1988
REGION ANDINA	23,922	40,923	420	534	61	78	3,666	4,147
Bolivia	484	1,818	86	80	9	9	717	685
Colombia	10,235	15,732	148	193	35	23	1,668	1,994
Ecuador	3,649	7,990	58	126	3	8	256	197
Perú		3,180	84	112	14	36	435	806
Venezuela	9,554	12,203	44	23	0	2	590	465
CONO SUR	16,151	50,763	49	59	55	153	3,553	4,892
Argentina	4,009	4,836	10	---	11	8	2,936	3,757
Chile	11,904	45,079	2	5	36	132	206	224
Paraguay	220	772	37	54	8	13	371	886
Uruguay	18	76	0	0	0	0	40	25
BRAZIL	18,783	23,745	295	324	836	1,104	10,747	8,342
CENTROAMERICA	25,460	3,108	82	110	0	0	555	1,194
Bélice	11	74	0	0	0	0	1	0
Costa Rica	33	358	0	2	0	0	85	95
El Salvador	15,917	787	24	33	0	0	34	46
Guatemala	2,415	182	15	29	---	---	---	725
Honduras	6,653	1,155	19	11	0	0	75	235
Nicaragua	130	167	17	27	0	0	324	63
Panamá	301	385	7	8	0	0	36	30
MEXICO	20,076	3,915	35	127	6	2	1,468	693
CARIBE LATINO	1,195	814	12	33	25	75	369	136
Cuba	10	122	0	0	0	0	70	32
Haití	---	---	---	---	---	---	---	---
República Dominicana	1,185	692	12	33	25	75	299	104
LATIN AMERICA	105,587	123,268	893	1,187	983	1,412	20,358	19,404

* País no ha notificado en 1989

** País no notifica casos de tétanos neonatorum por separado

Datos de polio corresponden a casos confirmados hasta la semana 52 (terminada el 30 de diciembre, 1989).

--- No se dispone de datos

4. VACCINATION COVERAGE IN THE REGION OF THE AMERICAS, 1988 AND 1989

TABLA 2
COBERTURAS DE VACUNACION EN LAS AMERICAS, 1989*

REGION Y PAIS	POBLACION (menores 1 año)		OPV3 %		DPT3 %		ANTISARAM %		BCG %	
	88	89	88	89	88	89	88	89	88	89
REGION ANDINA	2,612,613	2,661,002	71	71	61	61	58	61	72	76
Bolivia	263,800	271,200	40	50	39	40	44	70	27	70
Colombia	816,960	834,180	94	92	74	75	74	73	99	90
Ecuador	312,353	316,622	57	63	54	55	52	56	85	91
Perú	665,000	670,000	60	59	60	58	52	52	70	61
Venezuela	554,500	569,000	73	67	56	55	51	49	50	68
BRAZIL **	4,217,375	3,617,900	88	96	53	51	60	55	60	66
CENTRO AMERICA	984,017	999,973	68	72	63	65	67	68	66	77
Costa Rica	80,500	82,600	86	91	86	88	97	88	86	--
El Salvador	176,102	182,173	63	72	63	64	63	73	56	62
Guatemala	328,000	343,200	58	57	48	51	55	52	40	--
Honduras	191,019	183,600	70	83	74	77	76	86	84	75
Nicaragua	142,600	146,500	83	82	65	64	63	61	89	90
Panamá	60,526	61,900	73	71	74	71	75	75	90	90
CONO S./PARAGUAY	1,139,601	1,125,627	91	83	82	79	86	79	95	91
Argentina	680,000	668,000	90	81	80	74	87	78	99	93
Chile	287,981	279,150	96	94	96	94	95	89	97	98
Paraguay **	118,620	121,877	86	71	56	67	62	58	56	58
Uruguay	53,000	56,600	82	82	82	82	72	75	98	97
CARIBE INGLES		175,000	--	--	--	--	--	--	--	--
CARIBE LATINO	594,713	591,536	69	73	61	63	58	57	61	58
Cuba **	180,400	187,529	97	94	97	94	89	97	99	96
Haití	201,707	201,707	47	50	48	50	59	31	45	40
Rep. Dominicana **	212,606	202,300	65	75	40	46	29	46	42	40
MEXICO	2,100,000	2,579,200	95	96	60	65	70	85	73	80
TOTAL	11,648,319	11,575,238	84	86	60	61	64	67	71	74

--- No se dispone de datos

* Datos preliminares, solo se incluyen los países que han notificado a la fecha.

** Coberturas con OPV corresponden a dos dósis

Fuente: OPS