

EPI Newsletter

Expanded Program on Immunization in the Americas

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IMMUNIZE AND PROTECT YOUR CHILDREN

February 2001

Costa Rica Embarks on Accelerated Rubella and Congenital Rubella Syndrome Program

Background

Costa Rica introduced rubella vaccine into the national vaccination schedule in 1972. No significant changes in the trend of the disease were observed for the first two decades due to the low coverage (40%) obtained. It was only in 1984 that vaccination coverage of approximately 80% was reached. In 1992 a booster dose was included at 7 years of age resulting in further decrease in the number of cases (Figure 1).

For the last 14 years, rubella outbreak cycles were reported in 1987-1988 (1,079 cases), 1993-1994 (492 cases) and 1998-1999 (1,282 cases). A progressive reduction in the proportion of cases was observed in these outbreaks in the 15-24 age group from 45% between 1987-1988, to 25% between 1993-1994, to 11% between 1998-1999. In the 25-44 age group, a steady increase to 23%, 31% and 41% respectively was observed. Furthermore, when analyzing attack rates by age group in the last two outbreaks it was observed that those at greater risk were in the 20-29 age group, followed by the 30-39 age group (Figure 2).

Rubella incidence by sex has not shown important differences since the introduction of the vaccine. The 1998-

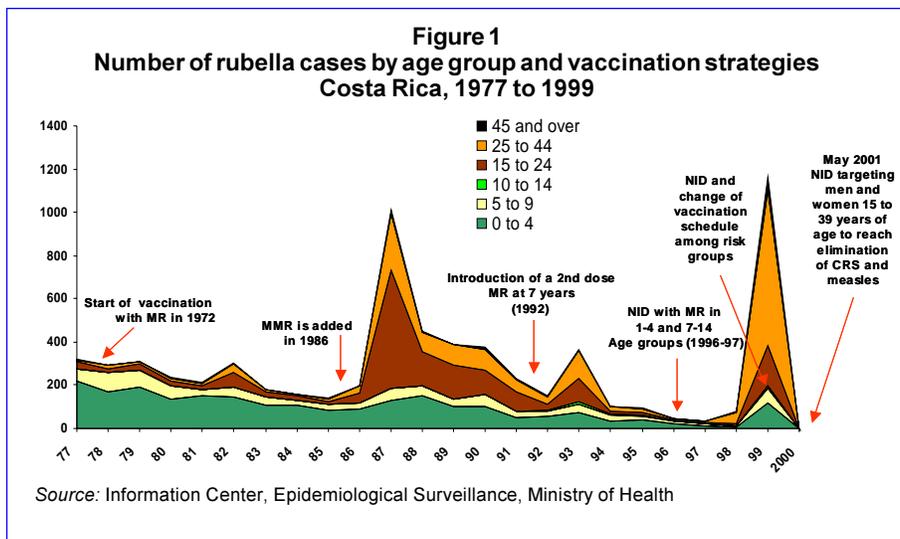
1999 rubella outbreak affected both men and women (a ratio of 1.15 female/1 male). Results of a national serological survey conducted in 1996 indicated that the seroprevalence of susceptibles to rubella was 7% among preschool children and 36% for women of childbearing age.

The endemicity of rubella in Costa Rica and the fact that recent outbreaks (1998-1999) had affected primarily women of childbearing age suggested that cases of congenital

rubella syndrome (CRS) were occurring. However, the country's compulsory notification system had not reported any case of CRS since 1992.

An active search of CRS cases was carried out at the National Children's Hospital by analyzing the database of the immunology section of that hospital's laboratory. Cases of children

under 3 months of age were identified which had undergone an IgM test for rubella virus with positive results between the periods of 1996 to 2000. Forty-nine children with CRS showing the following diagnosis were detected: 20 cases with hepato-splenomegaly (41%); 10 with microcephaly (20%); 10 multi-malformation (20%); 7 without a known cause (15%); and 2 cases with cataracts (4%). None of the records hinted to any suspicion of rubella, and the main



In this issue:

Costa Rica Embarks on Accelerated Rubella and Congenital Rubella Syndrome Program	1
March of Dimes Foundation Renews Support to PAHO	3
Update: OPV-Derived Poliomyelitis Outbreak in the Dominican Republic and Haiti	4

WHO Position on Use of Measles Mumps and Rubella (MMR) Vaccine ..	5
Analysis of Country Performance of AFP Surveillance and Vaccination Coverage	6
Reported Cases of Selected Diseases	7
In Memoriam of Polio Pioneers Dorothy M. Horstmann and Joseph Melnick .	8

diagnosis was TORCHS (toxoplasmosis, rubella, cytomegalovirus, herpes simplex virus, varicella-Zoster virus and syphilis).

The magnitude of CRS in Costa Rica also became evident in the preliminary results of a study of deafness conducted between 1996-1997, which evaluated the hearing of a total of 12,612 first graders in 250 schools in the country. The survey detected a 4% prevalence of deafness among school-aged children, whose source was unknown in 40% of the cases, congenital in 38% and acquired in 22%. A history of rubella during pregnancy was reported as one of the leading causes of acquired deafness.

These results only partially reflect the severity of CRS in the country, since they only correspond to cases of children under 3 months of age detected at the National Children's Hospital, and to a study showing the situation of deafness among schoolchildren, as well as their difficulties in being inserted into society.

This information also pointed to a serious underreporting of CRS cases in the notification system.

Action Plan for Rubella and CRS Prevention

The analysis of epidemiological data on rubella and CRS from the early seventies, the results of seroprevalence studies, the evaluation of coverage and the experience of the country with rubella vacci-

nation for several decades prompted Costa Rica's health authorities at the Ministry of Health and its Social Security Administration (CCSS) to work towards the prevention of rubella and CRS. In support of this goal, both the Ministry and Costa Rica's Social Security have developed an Action Plan which seeks the:

- Implementation of a national mass campaign for men and women 15-39 years of age with rubella and measles-containing vaccines
- Maintenance of MMR in childhood vaccination schedules
- Vaccination against measles and rubella of all postpartum women that have not been previously vaccinated
- Updating and strengthening of the integrated measles and rubella surveillance system
- Development of a CRS surveillance system.

The national campaign will take place May 2-31, 2001.

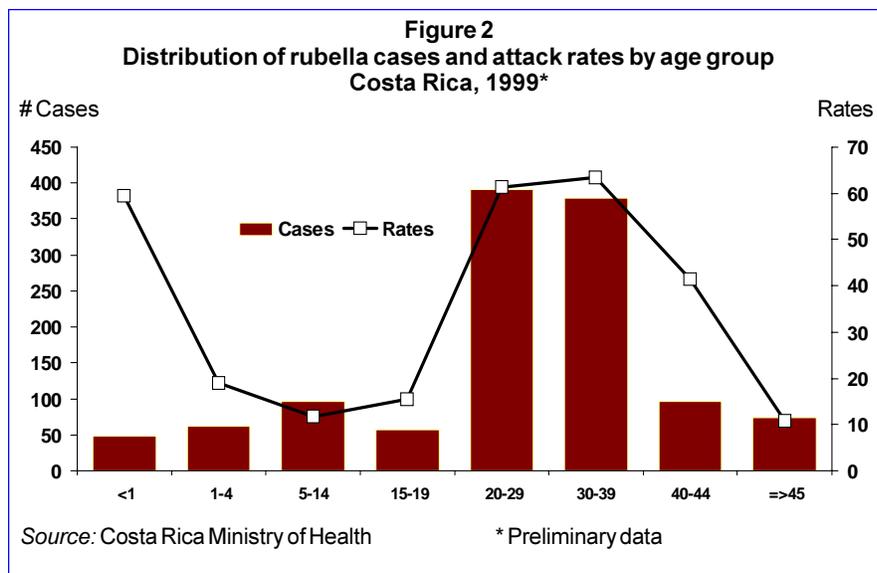
The Action Plan promotes the use of an integrated vaccination strategy and strengthening of epidemiological

surveillance aimed at consolidating measles eradication and ensuring rubella and CRS prevention.

The Plan incorporates the following strategies:

- Intersectoral action, especially with the education and labor sectors.
- Social mobilization with the community as well as political, union and religious leaders, community associations, presidents of student federations, representatives of secondary education, artists, entrepreneurs, local non-governmental organizations, and the media.
- Integrated management between the Ministry of Health and CCSS.
- Planning and management of the country's health service networks.
- Interagency cooperation for effective resource mobilization.

- International cooperation for technical cooperation and resource mobilization.



A National Commission of Immunization chaired by the Health Minister is directing the Action Plan, and a Commission led by the Vice Minister of Health will coordinate the activities. A Coordinating Commission has been established to oversee vaccination campaigns and epidemiological surveillance. As

part of the vaccination campaign component, the Commission will oversee the areas of logistics, cold chain and immunization safety, mass media, social communication, social participation, system of registries, staff training and supervision. For the epidemiological surveillance components, two working teams will focus on strengthening measles and rubella monitoring, as well as the development and implementation of a CRS surveillance system.

The national campaign will be coordinated with the regional and local epidemiology and vaccination commissions throughout the entire country. Social mobilization is expected to be widely used. Activities have included:

- Identification of needs of the different organizations at the community level (municipalities, schools, trade, church, and local organized groups).
- Identification of national personalities that should participate in the social communication efforts during vaccination campaigns (soccer players, singers, actors, religious and political leaders, societies and professional schools).

- Preparation and dissemination of a mass media proposal for the vaccination campaign.

This initiative represents a joint effort of national health institutions represented in the Ministry of Health and the CCSS, specialized agencies and the international community. The Pan American Health Organization and the Centers for Disease Control and Prevention are providing financial and technical support.

Source: For more information regarding this initiative, please contact Dr. Xinia Carvajal, Vice-Minister of Health, Ministry of Health, and Dr. Guillermo Santiesteban, Deputy Director, Social Security Administration.

Editorial Note: Together with the efforts of the English-speaking Caribbean countries and Chile, the initiative of Costa Rica's Ministry of Health and its Social Security Administration will generate useful knowledge and experience for the development of strategies for rubella and CRS prevention and control in the Americas, and for their eventual eradication. Costa Rica's Action Plan is consistent with the recommendations of PAHO's Technical Advisory Group on Vaccine Preventable Diseases in regards to vaccination strategies and implementation of surveillance systems.

March of Dimes Foundation Renews Support to PAHO

The March of Dimes Birth Defects Foundation has renewed its support to PAHO's regional activities to control and eventually eradicate rubella and congenital rubella syndrome (CRS), with a grant in the amount of US\$ 200,000 for 2001-2002. The first agreement was signed in 1998. PAHO has focused its collaboration with countries on the development, implementation and monitoring of strategies aimed at the control of rubella and prevention of CRS; support in the implementation of a regional surveillance system for rubella and CRS; strengthening of the collaboration with the regional Measles Laboratory Network to carry out rubella and CRS surveillance; and analysis of rubella and CRS surveillance, which includes the preparation of regular surveillance reports and contributions to scientific publications.

During the upcoming phase emphasis is being placed on the standardization of a rubella and CRS surveillance system; the implementation of strategies to reduce the number of susceptible women of childbearing age; follow-up mechanisms of all pregnant women who have developed rubella; collection of samples for viral isolation from every outbreak and development of virus isolation capabilities in countries; as well as the promotion of appropriate vaccination strategies.

Rubella and CRS in the Americas

For 2000, data on rubella obtained through PAHO's regional measles eradication surveillance system showed

that out of 71,723 laboratory analyses performed on samples of suspected measles cases, 11,992 (21%) were confirmed as rubella. Bolivia, Brazil, the Dominican Republic, Ecuador, Guatemala and Peru reported 92% of all confirmed rubella cases. Brazil, Honduras and Peru have integrated their measles and rubella surveillance systems.

By January of 2001 already 44 of the 47 countries in the

Americas had included rubella vaccine in their national immunization program. The Dominican Republic, Guatemala and Peru plan to introduce the vaccine during the second semester of 2001. To reduce the risk of rubella infection in women of childbearing age, Brazil, Chile, all CAREC Member States, Colombia, Costa Rica, Honduras and Panama have scheduled vaccinations using rubella vaccine during the postpartum period. Canada, Cuba, the United States and

Uruguay have used measles/mumps/rubella (MMR) vaccine for several years and large cohorts of women of childbearing age are being protected.

Most of the available experience in CRS surveillance continues to originate from the English-speaking Caribbean. Given the importance of surveillance in preventing CRS and the still limited available data, two additional sources of information have been added - the Latin American Center for Perinatology (CLAP) and the Collaborative Latin American Study Project of Congenital Malformations (ECLAM).



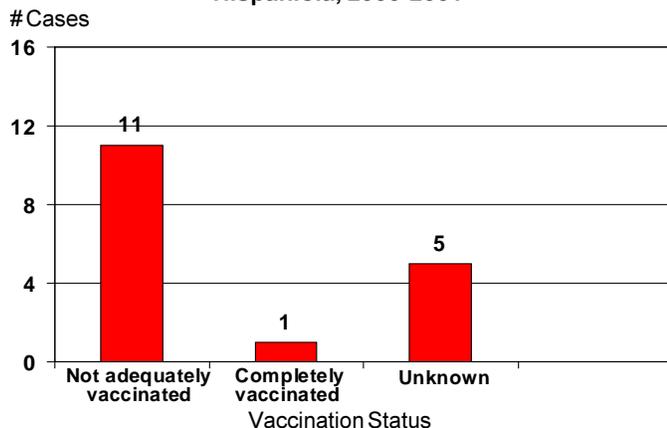
From left to right, Dr. Samuel Katz, Vice President for Research, March of Dimes Foundation, Dr. D.A. Henderson, Chairman of PAHO's TAG, and Dr. Ciro A. de Quadros, Director, Division of Vaccines and Immunization, PAHO during the last TAG meeting held in Foz de Iguazu, Brazil.

Update: OPV-Derived Poliomyelitis Outbreak in the Dominican Republic and Haiti

As of mid March 2001, a total of 17 cases due to vaccine-derived poliovirus type 1 have been confirmed by laboratory in the Hispaniola island (14 in the Dominican Republic and 3 in Haiti). In 14 of them the virus was isolated in the specimens collected from the patients. The other three acute flaccid paralysis (AFP) cases were confirmed because the virus was isolated in specimens collected from healthy contacts. The confirmed cases in the Dominican Republic are located in the provinces of La Vega (6), Santiago (3), the capital city, Santo Domingo (3), Monseñor Nouel (1) and Espaillat (1). The cases from Haiti are located in the following Departments: North West (1), North (1) and West, Port-au-Prince, the capital city (1).

Of these 17 confirmed polio cases, only 1 was completely vaccinated (Figure 1). The median age of the cases is 3 years (range of 9 months and 14 years of age). Most of the cases affected are located in areas with very low coverage with oral polio vaccine (OPV). The outbreak of poliomyelitis caused by Sabin type 1-derived poliovirus was initially detected in the Dominican Republic and Haiti in October 2000. In the Dominican Republic, the first confirmed case, a nine-month old girl, in the province of Monseñor Nouel, county of Bonao, had onset of paralysis 18 July 2000. In Haiti the first confirmed case, a two-year old girl, due to Sabin-1 derived virus had onset paralysis of August 30 and was reported in the town of Nan Citron (refer to *EPI Newsletter*, December 2000).

Figure 1
Vaccination history in confirmed cases
Hispaniola, 2000-2001*



Source: PESS

* Data as of March, 2001

Aggressive control measures were immediately put in place and environmental sampling has been conducted as part of the investigation. In the Dominican Republic, house-to-house vaccination and two national immunization rounds (NID) with OPV targeting children < 5 years have already been carried out in December 2000 and February 2001. In Haiti the strategy of “rolling campaigns” for polio and other antigens is being used to control this outbreak.

The Western Hemisphere has been free of wild poliovirus circulation since 1991, when the last case was detected

in Peru. The last case of poliomyelitis in the Dominican Republic occurred in 1985 and the last case in Haiti was reported in 1989.

Prolonged circulation of vaccine-derived poliovirus in areas with very low OPV coverage has only been documented in one other setting—a type 2 OPV-derived virus that circulated in Egypt for an estimated 10 years (1983-1993) and was associated with more than 30 reported cases. Vaccination coverage was quite low and circulation of the vaccine-derived poliovirus was terminated rapidly once OPV vaccination coverage increased.

Preliminary Findings

Besides low OPV vaccination coverage, epidemiologic investigations have identified poor sanitation as a risk factor for transmission of the virus. In the Dominican Republic’s Constanza county of La Vega Province, where most of the outbreak-related cases have been detected, coverage with three doses of OPV has ranged between 20% to 30% in children < 5 years of age. The national vaccination coverage with three doses of OPV in children < 1 year of age in the Dominican Republic has consistently been around 80% for each of the last 5 years; 20% of districts have had coverage above 80%. National Immunization Days were discontinued in that country five years ago. From 1983 to 1993, approximately 16.1 million OPV doses were administered to children < 3 years of age through NIDs. In 1999, Haiti’s Northwest Department reported OPV coverage of 40%. During the last 10 years, national vaccination coverage with three doses of OPV in children < 1 year of age has been between 30% and 50%. NIDs were also discontinued five years ago.

In the Dominican Republic, the AFP rate per 100,000 population aged < 15 years has been below 1 during six of the last ten years, and around 0.1 in Haiti since 1995 (Figure 2). The proportion of AFP cases with adequate specimen in the Dominican Republic has been approximately 80% from 1993 to 1998, followed by 30% in 1999 and 36% in 2000. In Haiti, none of the AFP cases reported during the last five years had stool specimens collected. The proportion of notification sites reporting weekly during the last 10 years has been above 80% in the Dominican Republic, except in 1999 when it was 50%. In Haiti the proportion of notification sites reporting weekly has been below 50% for the last 10 years, except in 1998 when it was 95%. Enterovirus isolation has been above 15% in Dominican Republic for the last 10 years, except in 1996 and 1999 when it was zero, and in 1997 when it was 9%.

The first cases were detected through the routine national AFP surveillance system, which requires that all cases of AFP be investigated as suspected poliomyelitis. Stool specimens have to be collected from such cases and have to be sent to a laboratory of the regional polio laboratory network for determination of whether the paralysis is caused by the wild poliovirus. PAHO’s Poliovirus Laboratory at the

Caribbean Epidemiology Center (CAREC) isolated poliovirus type 1 from both AFP cases. Subsequently, the isolates were sent to the Poliovirus Laboratory of the Centers for Disease Control and Prevention (CDC) for further characterization. Sequence analysis revealed that the virus associated with this outbreak was unusual because it is derived from the oral polio vaccine, with a 3% genetic divergence from the parental OPV strain (usually, vaccine-derived poliovirus do not diverge >0.5% from the parent strain). Normally, wild poliovirus have <82% genetic similarity to OPV. The poliovirus associated with this outbreak appears to have recovered the neurovirulence and transmissibility characteristics of wild poliovirus type 1. The differences in nucleotide sequences among the outbreak isolates suggest that the virus has been circulating for approximately 2 years in an area where vaccination coverage is low and that the virus had accumulated genetic changes that restored the essential properties of wild poliovirus.

Intensive case-finding activities continue, to determine the extent and magnitude of the outbreak, identify foci of disease activity, and organize areas for vaccination activities. Two teams of national and international epidemiologists were established to conduct active search for Acute Flaccid Paralysis (AFP) cases in both countries. A total of 16 epidemiologists have already been hired and active search remains in health centers, hospitals, emergency care centers, physical therapy clinics, orphanages, day care centers and in the community. All suspected cases have undergone a complete epidemiological investigation, with stool specimens being taken.

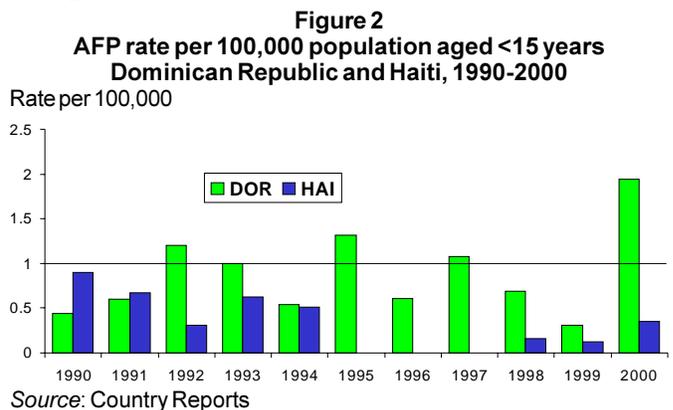
A total of 340 stool specimens have been collected (289 in the Dominican Republic and 51 in Haiti). In the Dominican Republic 84 specimens were collected in AFP cases and 205 in healthy contacts. Laboratory results of the specimens from AFP cases were positive for the same vaccine-derived poliovirus type 1 (n= 11), for poliovirus Sabin type 2 (n=4), for poliovirus Sabin type 3 (n=2), for non-polio enterovirus (n=9), for adenovirus n=6), 33 were negative and 19 are still pending. In specimens from contacts, results were positive

for the vaccine-derived poliovirus type 1 (n= 11), for poliovirus Sabin type 1 (n=2), for poliovirus Sabin type 2 (n=1), for poliovirus Sabin type 3 (n=2), for non-polio enterovirus (n=25), for adenovirus (n=7), 99 were negative and 58 are still pending.

In Haiti, 17 specimens were collected in AFP cases and 34 in healthy contacts. Laboratory results of the specimens from AFP cases were positive for the same vaccine- derived poliovirus type 1 in three cases, 12 were negative and two are still pending. In specimens from contacts, six results were positive for non-polio enterovirus, one for Sabin type 3 and 27 were negative.

No evidence for circulation of OPV-derived poliovirus has been found in areas with high vaccination coverage. This underscores the need for polio-free areas to maintain high coverage with oral polio vaccine until global eradication has been achieved, while at the same time maintaining a high quality AFP and poliovirus surveillance.

Currently, all Sabin poliovirus isolates from AFP cases in the Americas since 1995 are being sequenced in conjunction with epidemiological analysis of those high-risk areas where new Sabin-derived poliovirus has been identified. The situation in Hispaniola will also call for additional studies prior to deciding whether to discontinue polio vaccination once global eradication has been achieved.



WHO Position on Use of Measles Mumps and Rubella (MMR) Vaccine

The World Health Organization (WHO) strongly endorses the use of MMR (measles, mumps and rubella) vaccine on the grounds of its convincing record of safety and efficacy. The combination vaccine is recommended rather than monovalent presentation when available and the disease burden justifies its use.

There has been no new scientific evidence that would suggest impaired safety of MMR. On the contrary, all results from vaccine trials published reaffirm the high safety and efficacy of MMR vaccine.

Background

Measles is a major killer of children mainly in developing countries, accounting for approximately 875,000 deaths each year. However, recent outbreaks in industrialized countries have highlighted the importance of improving measles immunization coverage throughout the world. Congenital rubella syndrome (CRS) is an important cause of deafness, blindness and mental retardation. It is estimated that more than 100,000 cases of congenital rubella syndrome occur each year worldwide. Mumps is an acute infectious disease. Although the disease is mild, up to 10% of patients can develop aseptic meningitis; a less common but more serious complication is encephalitis, which can result in death or disability. These three communicable diseases can be easily prevented through immunization.

Source: World Health Organization

Analysis of Country Performance of AFP Surveillance and Vaccination Coverage

In preparation for the Sixth Meeting of the Global Commission for the Certification of Poliomyelitis Eradication to take place March 27-28 in Washington D.C., PAHO prepared an analysis assessing country performance of national surveillance systems in the last five years and the level of vaccination coverage reached during those same years in Latin American countries, Canada and the United States. The quality of the surveillance for acute flaccid paralysis (AFP) was evaluated by combing the indicators of rates of AFP with adequate stool sample and AFP rate $\geq 1:100,000$ children < 15 years of age. The level of protection of the population was assessed by using national coverage of OPV3 in children under 1 year of age. This information allows countries to clearly determine areas that will require immediate action. It is worth noting that some countries continue to carry out National Immunization Days (NIDs), as recommended by PAHO's 13th Technical Advisory Group on Vaccine Preventable Diseases held in Hull, Canada. The recommendation notes that countries need to maintain 95% vaccination coverage with OPV in 80% of the districts or equivalent geopolitical area. Those countries that are unable to reach this coverage level should carry out at least two NIDs.

Table 1
Latin America, Canada and the United States
1995-2000

Country	AFP rate with adequate sample per 100,000 children < 15 years old						OPV3 national coverage % in <1 year old					
	1995	1996	1997	1998	1999	2000	1995	1996	1997	1998	1999	2000
Argentina												
Bolivia												
Brazil												
Canada											
Chile												
Colombia												
Costa Rica												
Cuba												
Dominican Republic												
Ecuador												
El Salvador												
Guatemala												
Haiti												
Honduras												
Mexico												
Nicaragua												
Panama												
Paraguay												
Peru												
Uruguay												
USA						
Venezuela												

... Data not available



≥ 0.8



< 0.8



≥ 80%



< 80%

Source: Country Reports

Reported Cases of Selected Diseases

Number of reported cases of measles, poliomyelitis, tetanus, diphtheria, and whooping cough, from 1 January 2000 to date of last report, and the same epidemiological period in 1999, by country.

Country/Territory	Date of last report	Measles				Polio		Tetanus				Diphtheria		Whooping Cough	
		Confirmed 2000			Confir- med*	2000	1999	Non Neonatal		Neonatal		2000	1999	2000	1999
		Labo- ratory	Clini- cally	Total				2000	1999	2000	1999				
		1999	2000	1999	2000	1999	2000	1999	2000	1999					
Anguilla	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Antigua & Barbuda	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Argentina	30-Jan	6	0	6	313	0	0	12	18	0	2	0	0	515	592
Bahamas	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barbados	30-Jan	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Belize	30-Jan	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Bermuda	30-Jan	0	0	0	0	0	0	1	1	0	0	0	0	2	0
Bolivia	30-Jan	62	60	122	1,441	0	0	8	1	2	2	1	2	10	16
Brazil	30-Jan	34	4	38	890	0	0	346	629	34	66	46	53	764	1,369
British Virgin Islands	30-Jan	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Canada	30-Jan	206	—	206	29	0	0	1	1	...	...	0	1	4,055	5,377
Cayman Islands	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Chile	30-Jan	0	0	0	31	0	0	5	15	0	1	0	0	1,453	3,178
Colombia	30-Jan	0	1	1	37	0	0	27	11	10	19	11	0	446	332
Costa Rica	30-Jan	0	0	0	23	0	0	1	1	0	0	0	0	23	11
Cuba	30-Jan	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Dominica	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dominican Republic	30-Jan	237	9	246	259	11**	0	26	36	4	1	50	44	40	21
Ecuador	30-Jan	0	0	0	0	0	0	28	43	6	14	1	5	482	204
El Salvador	30-Jan	0	0	0	0	0	0	13	7	3	3	0	0	3	3
French Guiana	30-Jan	0	0	0	0	0	0	...	...	...	...	...	...	...	...
Grenada	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	1	4
Guadeloupe	30-Jan	0	0	0	0	0	0	...	...	...	...	...	...	...	...
Guatemala	30-Jan	0	0	0	0	0	0	10	0	3	2	0	0	47	582
Guyana	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haiti	30-Jan	979	13	992	0	3**	0	...	...	27	38	0	8	14	24
Honduras	30-Jan	0	0	0	0	0	0	9	16	0	2	0	0	169	145
Jamaica	30-Jan	0	0	0	0	0	0	5	6	0	0	0	0	23	12
Martinique	30-Jan	0	0	0	0	0	0	...	...	...	...	...	...	...	...
Mexico	30-Jan	28	0	28	0	0	0	103	186	9	14	0	0	...	102
Montserrat	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Netherlands Antilles	30-Jan	0	0	0	0	0	0	...	...	...	...	...	...	...	...
Nicaragua	30-Jan	0	0	0	0	0	0	9	5	0	0	0	0	11	27
Panama	30-Jan	0	0	0	0	0	0	4	4	0	1	0	0	66	212
Paraguay	30-Jan	0	0	0	0	0	0	13	23	7	10	0	0	24	29
Peru	30-Jan	1	0	1	12	0	0	57	70	10	12	0	8	68	2388
Puerto Rico	30-Jan	0	—	0	0	0	0	...	...	...	...	...	...	...	...
St Vincent/Grenadines	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Kitts/Nevis	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Lucia	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Suriname	30-Jan	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Trinidad & Tobago	30-Jan	0	0	0	0	0	0	3	7	0	0	0	0	0	0
Turks & Caicos	30-Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	30-Jan	85	—	85	100	0	0	26	32	...	...	2	1	6,755	7,298
Uruguay	30-Jan	...	...	0	34	0	0	0	0	0	0	0	0	0	3
Venezuela	30-Jan	16	6	22	0	0	0	27	46	1	4	0	0	185	502
TOTAL		1,655	93	1,747	3,169	14	0	738	1,161	116	191	111	122	15,156	22,438

... Data not available.

—Clinically confirmed cases are not reported.

* Laboratory and clinically confirmed cases.

** Type 1 vaccine derived poliovirus

In Memoriam of Polio Pioneers Dorothy M. Horstmann and Joseph Melnick

Dr. Dorothy M. Horstmann and Dr. Joseph L. Melnick, two distinguished pioneers in polio research passed away in early January, 2001. The two researchers collaborated on a number of technical papers.

Dr. Horstmann made significant contributions to science and public health, particularly regarding polio and rubella. She was a member of the International Commission for the Certification of Poliomyelitis Eradication (ICCPE) which in 1994 declared the Region of the Americas free of poliomyelitis. Dr. Horstmann's major scientific achievement was showing that the polio virus traveled through the bloodstream. At the time, scientists believed that the polio virus directly attacked the nervous system because efforts to isolate the virus from the blood of paralyzed patients had failed. Her team detected the polio virus in the blood of infected monkeys and chimpanzees before signs of paralysis appeared. They found that by the time paralysis developed, antibodies had eliminated the polio virus from the blood. Her work contributed to the licensing of an oral polio vaccine developed by Dr. Albert Sabin from live, weakened virus. She was elected to the National Academy of Sciences and served as president of the Infectious Diseases Society of America. In 1961, Dr. Horstmann became the first woman appointed as a professor at Yale University School of Medicine.

Dr. Melnick worked at Baylor College of Medicine for over 40 years and was credited with being the first to

demonstrate that poliovirus usually invades the intestine of the infected host rather than the central nervous system. Dr. Melnick led the team that developed thermostabilized live polio vaccines, making possible the immunization of millions of people in countries without deep-freeze storage facilities. He had a keen interest in virus classification and was also the first to conceptualize, classify and name a number of virus groupings and in recovering human pathogenic viruses from surface waters. For more than 30 years, Dr. Melnick served on the World Health Organization (WHO) Expert Panel on Virus Diseases and was active in WHO programs concerned with poliomyelitis, hepatitis and herpes viruses. He was the director of the WHO Collaborating Centre for Virus Reference and Research at Baylor, which was designated as one of the international centers coordinating the laboratory efforts in support of WHO's global eradication goal. Besides his work on polio, Dr. Melnick was a leader in WHO programs fighting hepatitis and herpes and in developing methods for detecting and monitoring virus in the environment. In 1958, he was elected to the Polio Hall of Fame by the National Foundation for Infantile Paralysis for contributions leading to a vaccine against poliomyelitis. Dr. Melnick was also a recipient of the Sabin Gold Medal Award and the Eleanor Roosevelt Humanities Award.

Source: *The Washington Post*, January 22, 2001, *Yale Bulletin & Calendar*, January 26, 2001, Volume 29, Number 16 and the *Houston Chronicle*, January 14, 2001.

The *EPI Newsletter* is published every two months, in Spanish and English by the Division of Vaccines and Immunization (HVP) of the Pan American Health Organization (PAHO), Regional Office for the Americas of the World Health Organization (WHO). Its purpose is to facilitate the exchange of ideas and information concerning immunization programs in the Region, in order to promote greater knowledge of the problems faced and their possible solutions.

References to commercial products and the publication of signed articles in this *Newsletter* do not constitute endorsement by PAHO/WHO, nor do they necessarily represent the policy of the Organization.

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