

EPI Newsletter

Expanded Program on Immunization in the Americas

Measles Update: Dominican Republic

Background

In November 1998, the Dominican Republic was affected by a measles outbreak that began in the province of Altagracia, due to an importation from South America. The same month, the country carried out a *follow-up* measles campaign that had already been planned, targeting children between 9 months and 4 years of age. Average coverage obtained was 69%, which was insufficient to stop the outbreak. This outbreak spread throughout the country in 1999, with 274 measles confirmed cases reported. Over 50% (141/274) of cases were reported from the Santo Domingo metropolitan area, where pockets of unimmunized children, overcrowding, and low coverage rates from previous *follow-up* campaigns helped to spread the disease. As the epidemiological data has supported in other outbreaks in the Region, the age group most affected has been children <1 year of age. The age-specific rates for 1999 were: infants under 1 year of age, 18.3 cases/100,000; children 1-4 years of age, 10.2 cases/100,000; children 5-14 years of age 3.2 cases/100,000; and >15 years of age, 1.6 cases/100,000. The age-specific rates for 2000 through epidemiological week 18 are: infants under 1 year of age, 7.3 cases/100,000; children 1-4 years of age, 2.1 cases/100,000; children 5-14 years of age, 0.9 cases/100,000; adolescents 15 – 19 years of age, 0.4 cases/100,000; young adults 20 – 29 years of age, 1.9 cases/100,000 and > 29 years of age, 0.5 cases/100,000 (Figure 1).

When analyzing the cases by age, 14 of the 16 cases in children under 1 year of age are under 9 months, and 12 cases are between the ages of 6 and 9 months. Furthermore, there has been an increase in the incidence of measles among the 20-29 year age group.

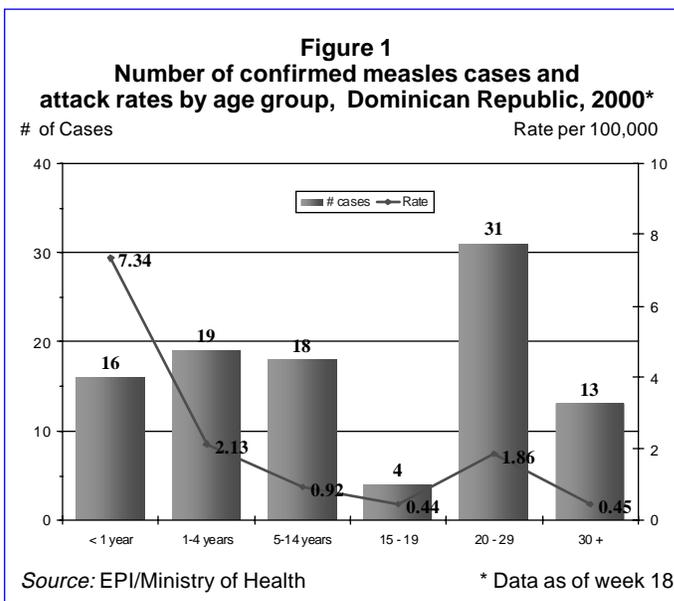
As of May 6, 101 laboratory confirmed measles cases have been reported. During the same time period in 1999, 108 cases were reported (see Figure 2). Over this time period, 1,048 blood samples were taken. Many of these cases were encountered during the active search activities that were conducted in January and February of 2000. The efforts that were made to control this outbreak are described below.

Vaccination Activities and Active Search

In March of 1999, house-to-house vaccination of children between 6 months and 14 years of age was carried out in the entire country with the objectives of interrupting the outbreak. However, the results were not sufficient to achieve the interruption of measles virus circulation. In order to control the outbreak, an indiscriminate

measles campaign was conducted in December, 1999. Nineteen provinces were chosen to participate in the vaccination activities, based upon the following criteria:

- Recent confirmed measles cases
- Low measles vaccine coverage in children < 5
- Poor surveillance indicators
- Provinces bordering Haiti



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In this issue:

Measles Update: Dominican Republic	1	Meetings on Surveillance of Bacterial Meningitis and Pneumonias	6
Active Municipalities	2	Improvements in AFP Surveillance in the Americas	6
Measles in Haiti	3	Vaccination Coverage Rates: 1999	7
Measles and Rubella Surveillance Integration in the Americas	4	Dr. Ciro de Quadros awarded Albert B. Sabin Gold Medal	8
Paraguay Supports Measles Eradication	5		

- Urban areas with low income populations and over crowding

All provinces cooperated in the campaign; however, due to the holidays, several areas did not complete their immunization activities and had to resume in January. Overall coverage in children <5 years of age reached 89%.

In order to interrupt transmission of measles, an active search for suspected cases was initiated in January, 2000.

Priority was given to “high risk” areas, such as crowded urban settings with low coverage in the December campaign, bordering provinces with Haiti, and areas where confirmed measles cases were reported in the previous four weeks. Over 20 health professionals were trained in the methodology to conduct an active search with materials developed by PAHO consultants and staff. Each week, teams consisting of two trained individuals and a driver implemented the active search. Components of the active search include: review of public and private hospital records, meetings with the provincial director, epidemiologist and immunization program coordinator, focus groups with leaders and members of the community, and neighborhood house-to-house active search in high risk areas. As of February, an active search was completed in all of the provinces in the country. This included 95 health centers and hospitals. Here, 225,287 records were reviewed and 385 suspected cases were discovered, from which 320 of serum samples were collected. Of the 385 suspected cases uncovered in the active search, 112 (29%) had already been reported in the surveillance system. This search of cases

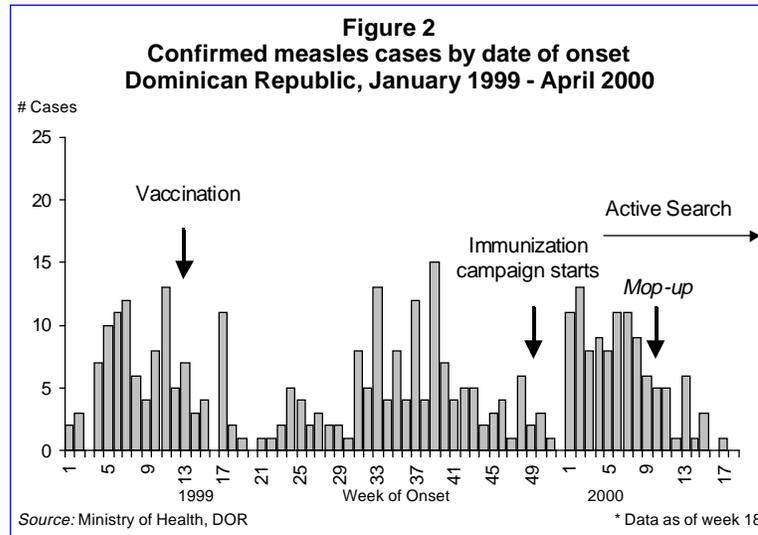
verified that in spite of all the efforts done, there still remained unvaccinated children and the virus was still circulating in the country. In conjunction with the Provincial Health Directors, the areas that needed further interventions were identified by searching children that had not been vaccinated in previous campaigns.

An important component of PAHO’s strategy to eradicate measles transmission involves intensive mop-up activities in areas where the virus is circulating. The Dominican Republic conducted such a campaign from March 10-April 15. Its goals were: 1) to vaccinate 100% of children between 6 months and 4 years of age that have not been previously vaccinated in all municipalities that have confirmed measles cases (see box); 2) to vaccinate all children not previously vaccinated between 9 months and 4 years of age in municipalities that have vaccination coverage under 95%; and 3) to vaccinate 100% of children between 1-4 years of age that received measles vaccine before they were one year of age in municipalities that have coverage < 95%. A total of 26 provinces were involved, as well as several neighborhoods in Santo Domingo. House-to-house vaccination took place, using maps and close supervision of vaccination teams.

Vaccine coverage is currently being evaluated by visits to each municipality. The reports from the campaign are being reviewed, as well as monitoring of coverage in high-risk areas.

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Source: Zacarias Garib, Linda Venczel, Cristina Pedreira, Jorge Medrano, Katie Alcantara and Escarle Peña.



Active Municipalities

Active municipalities are those with confirmed measles cases with onset within the last 12 weeks. PAHO is tracking measles transmission in these municipalities on a weekly basis in the *Measles Bulletin*, <http://www.paho.org>

The following is essential in all active municipalities:

- Regular visits (weekly if necessary) to verify the existence of additional cases, through active search and careful investigation of these cases and their contacts. Case investigations must necessarily include a survey of place of residence and/or workplace to determine who has shown symptoms of measles, to collect the necessary blood and urine samples, and to determine in which places the cases have been within: (a) 7 -18 days prior to rash onset (source of infection) and (b) between the beginning of the first symptoms (cough, coriza and/or conjunctivitis) until the 4 days following the beginning of rash (places where cases could have infected others). These places should also be investigated.
- Monitor measles vaccination coverage for children 6 months to 4 years of age in two or more blocks defined by the epidemiologist as high-risk (hard-to reach, and/or with high migrant population, and/or with recent cases).
- If vaccination coverage in a municipality is found to be under 95%, house-to-house vaccination of all children 6 months to 4 years of age should be carried out in the entire municipality.
- If, either through case investigations or because of previous epidemiological knowledge, other risk groups are identified, these groups should also be vaccinated.

Measles in Haiti

Initial outbreak in the city of Gonaïves

After four years with no reported cases of measles, Haiti detected the first known case of measles on March 15, 2000. This laboratory-confirmed case had rash onset on March 8, 2000 and was detected by the Pediatric Hospital in the city of Gonaïves. That same day, the case was reported to the health department of Gonaïves, which subsequently reported it to the central level on March 22. The case investigation was conducted on March 23 by a team from the Ministry of Health and PAHO.

The City of Gonaïves is located 180 km North of Port-au-Prince on the main road that links the cities of Port-au-Prince, St-Marc and Cape-Haitian, in the department of Artibonite. Approximately 132,786 inhabitants live in Gonaïves, of which 20,501 are children under 5 years of age. During the last national *follow-up* measles vaccination campaign carried out in November 1999, only 12,482 (61%) of children under 5 years of age were vaccinated against measles in this city.

During the initial investigation, the team found seven cases in the acute phase of the disease. Thirteen additional cases were reported by the Pediatric Hospital, bringing the total to 20 cases. Fifteen blood samples were positive for markers of IgM anti-measles. Urine samples from cases were sent to CAREC for viral isolation.

The index case was a 4-year old child with no history of immunization with a measles-containing vaccine. The child had not traveled nor had he been in contact with persons outside of the city of Gonaïves in the two weeks prior to rash onset. It was difficult to identify the source of the infection for this case.

As of March 1, door-to-door vaccination was carried out, targeting all children (estimated 60,000) between 6 months to 15 years in the entire city of Gonaïves. Ten teams were assembled; each composed of 10 vaccinators and a supervisor. More than 68,000 children were vaccinated in 10 days. This opportunity was also used to distribute supplements of vitamin A to children between 6 months to 7 years of age.

During the recently held evaluation of Haiti's National Immunization Program (March 27 to April 6, 2000), 21 cases were reported to the hospital of Gonaïves. A total of 84 confirmed measles cases have reported through April 30 in Gonaïves. All these cases were children under 10 years of age, distributed in the majority of the city's neighborhoods. None of the cases had a history of vaccination against measles. The highest attack rates were found in children between 3 and 5 years of age.

During the evaluation, visits were made to hospitals in 5 departments and no other suspected cases were detected. However, an active search for suspected measles cases was necessary to determine whether there was measles virus transmission in other areas.

Besides the strategy of door-to-door vaccination, other recommendations included:

- Vaccination of all medical and paramedical staff of

health institutions who come in contact with children.

- Vaccination of all children who had contact with the Pediatric Hospital, as well as children who were hospitalized there.
- Vaccination of all drivers and fare collectors of public transportation and children under 10 years of age who travel in buses from Gonaïves towards the other cities of the country.

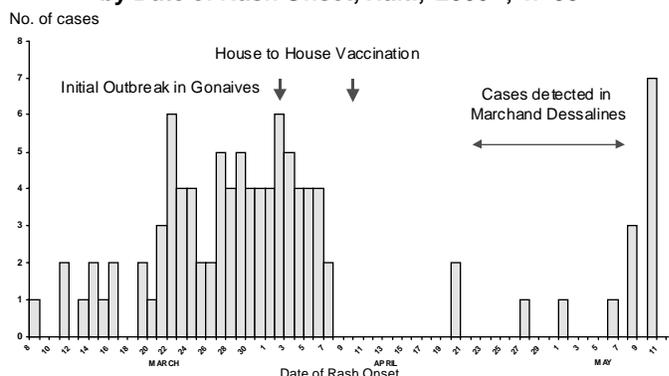
Active Search and Detection of Cases in Marchand Dessalines

Members of the department of epidemiology, with the assistance of PAHO consultants, are conducting an active search in the major health establishments and the community. Areas include the Department of Artibonite, as well as the Port-au-Prince metropolitan area, and other major cities connected by highway to Gonaïves. Because one laboratory-confirmed case was reported from the City of Marchand Dessalines (a city approximately 40 km from Gonaïves, in the Department of Artibonite), active search activities were directed to this area. An additional 14 cases were later confirmed, of which six were confirmed in the laboratory, and the other eight were epidemiologically linked to these cases (Figure 1). Ages of the cases ranged from 1-14 years of age. House-to-house vaccination was swiftly implemented, with the participation of the team that supervised the immunization activities in Gonaïves. To date no cases have been uncovered in the Port-au-Prince metropolitan area.

The following activities are being planned to stop measles transmission in Haiti:

- House-to-house vaccination of all children between 9 months and 15 years of age, in the larger urban centers of the country, and of all border cities with the Dominican Republic.
- Strengthening of epidemiological surveillance at all hospitals and others sentinel centers in rest of the country.
- Visits to all hospitals in Port-au-Prince, in order to quickly detect the circulation of measles virus and presence of possible cases.
- Completion of the active search throughout the country, with complete investigation of all suspected cases within 48 hours.

Figure 1
Confirmed Measles Cases
by Date of Rash Onset, Haiti, 2000* ; n=99



Source: Ministry of Health; *Cases through epidemiological week 18

Measles and Rubella Surveillance Integration in the Americas

The goal to eradicate measles in the Americas and the development of the Measles Eradication Surveillance System (MESS) have increased and enhanced epidemiological surveillance in the Region. Through MESS it has become evident that rubella virus is circulating widely in various countries in the Americas, with marked increases every year. It has been calculated that in non-epidemic years, approximately 20,000 children are born with congenital rubella syndrome (CRS) each year. This epidemiological situation makes rubella and CRS serious public health problems in the Region.

In 1998, there were 41 countries reporting 135,947 rubella cases: Argentina, Mexico and Venezuela accounted for 92% of these cases. In 1999, the information about rubella obtained through the MESS system showed that out of 33,633 laboratory analyses performed on samples from suspected measles cases, 26% (8,657) were confirmed as rubella. Ecuador, Brazil, Nicaragua, Dominican Republic and Guatemala accounted for 80% of those cases.

of a regional initiative to integrate rubella and measles surveillance and the strengthening of CRS prevention efforts already in place.

The objectives of rubella surveillance are to determine where the virus is circulating; to timely detect cases in order to carry-out outbreak control and CRS prevention measures; to help quantify the magnitude of the problem; and to provide evidence of the impact of interventions.

For the purpose of an integrated surveillance system, any patient in whom a health worker suspects measles or rubella infection is considered a *suspected* measles or rubella case. These patients generally present fever and a generalized maculopapular rash (Figure 1).

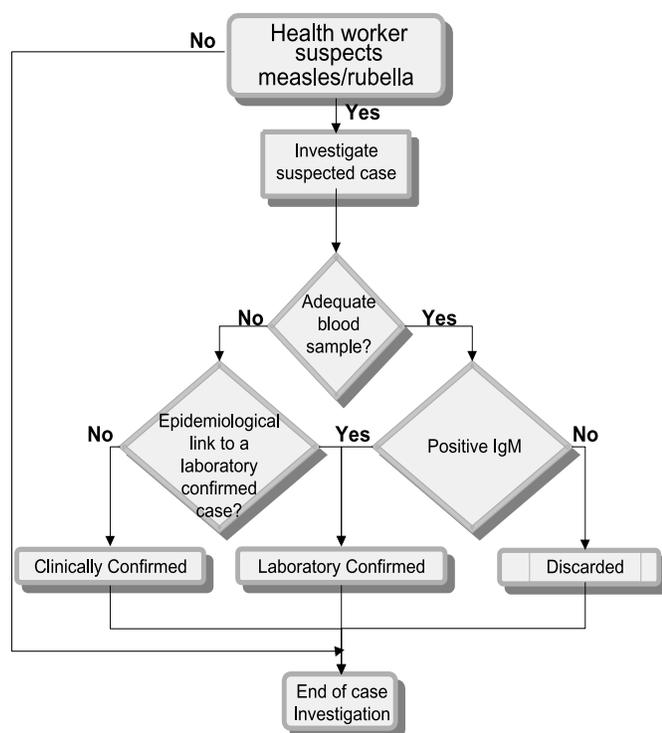
This seemingly simple change has had significant implications for the Measles Eradication Surveillance System, particularly in the classification scheme, clinical data and the way in which the data are analyzed.

To manage the surveillance of two diseases simultaneously, while maintaining the ability to analyze them separately, the concept of *initial* and *final diagnosis* were introduced. This allows to assign a classification to each case, and also segregate or group cases based on their initial or final diagnosis.

Case classification still includes the three options of the previous version: Suspect, Discarded and Confirmed. However, it is now necessary to be more specific and designate the type of suspicion, *measles* or *rubella*. Similarly, when confirming a case one has to specify that the case is either confirmed as *measles* or confirmed as *rubella*. When the classification assigned is *Discarded*, it is also necessary to specify a final diagnosis as either *dengue*, *vaccine reaction*, *other* or *unknown* (Table 1).

Figure 1

Investigation & Classification of a Suspected Measles or Rubella Case



In response to the threat for rubella epidemics, the resulting CRS burden and the current endemic course of the disease, the XIII Meeting of the Technical Advisory Group on Vaccine Preventable Diseases (TAG) of the Pan American Health Organization, recommended the implementation

Table 1

Classification	Initial Diagnosis	Final Diagnosis
A – Suspected	A – Measles	N/A
	B – Rubella	
B – Discarded	N/A	I – Dengue
		V – Vaccine Reaction
		Y – Other
		Z – Unknown
C – Confirmed	N/A	A – Measles
		B – Rubella

It is relevant to point out at this time the difference between the options of *Other* and *Unknown* as final diagnosis. Usually, when the final diagnosis is indicated as *Other*, it means that it is known that is it not dengue, and that there is also certainty about the other diagnosis. In these cases a

space is provided to allow for a specific description. In contrast, an *Unknown* final diagnosis implies that the case is not measles, rubella, or dengue, and that there is also insufficient information to make a final determination.

Another area that had an impact by the integration of measles and rubella surveillance was the section on clinical data. Here, fields were added to indicate the presence of arthralgia; whether the case is a pregnant woman and if so, the number of weeks into the pregnancy and probable place for delivery; as well as whether the case had contact with a pregnant woman. These data can be used as an early opportunity to take preventive or control measures regarding CRS.

It is important to keep in mind that the system now maintains both measles and rubella suspected cases, and that this greatly affects all reporting, listings, tables (such as the indicators) and their interpretation.

For reporting purposes, and when applicable, there is an option to specify which cases are to be included in the analysis, by means of different criteria such as classification, initial and final diagnosis among others. In this way the exact set of cases desired can be analyzed.

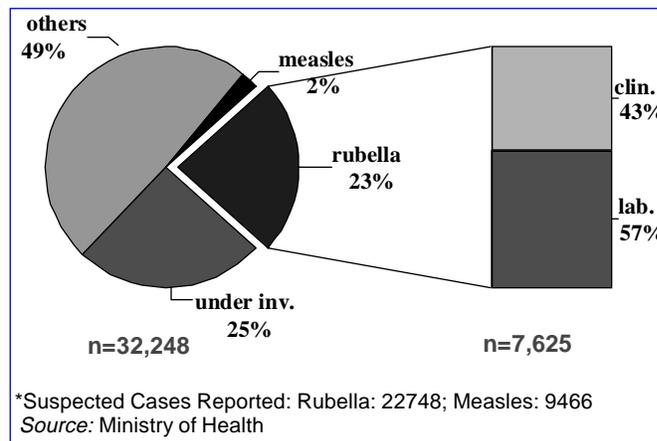
If for example a report is needed with the indicator about the investigation of cases (measles suspected only) within 48 hours following reporting, **Measles** needs to be specified as the initial diagnosis.

The initial initiatives towards the integration of measles and rubella surveillance are already contributing to increas-

ing the sensitivity of measles surveillance allowing the detection of all measles suspected cases that could possibly occur. This is critical at this stage of the eradication goal.

Countries like Brazil, which have implemented an integrated surveillance system, show an increased sensitivity in measles surveillance. In 1999, Brazil reported 32,248 measles and rubella suspected cases (about 23,000 rubella and 9,000 measles) of which 23% were confirmed as rubella. Of the cases reported as suspected rubella, 154 were confirmed as measles and of those reported as suspected measles, 246 were confirmed as rubella (Figure 2).

Figure 2
Measles and Rubella Integrated Surveillance
Supected Cases Reported, Brazil, 1999*



Source: Carlos Castillo, Fernando Vargas and Hector Izurieta.

Paraguay Supports Measles Eradication

Between April 24 and 31 May, Paraguay is carrying out a National Immunization Day in support of the measles eradication goal. The campaign is also being used to immunize over 500,000 children under the age of 5 years old with the oral polio vaccine, and to complete the schedules or initiate vaccination with other biologicals. A house-to-house active search for measles cases is also being conducted.

The First Lady of Paraguay, Mrs. Susana Galli de Gonzalez Macchi has been actively involved in the organization of the campaign, as Honorary President of the National Organizing Committee, which is led by the Minister of Health, Dr. Martin Antonio Chiola. PAHO is providing technical and financial support towards the implementation of the campaign. Other participating agencies include UNICEF, the World Bank, the Inter-American Development Bank, Plan International, the Ministry of Education, the Red Cross, the Armed Forces, Social Security and the Women's Secretariat. Most local governments have contributed with resources.



The First Lady of Paraguay, Mrs. Susana Galli de Gonzalez Macchi inaugurates the National Immunization Campaign with Dr. Martin Antonio Chiola, Minister of Health, and Mr. Diego Victoria, PAHO's Country Representative in Paraguay.

Meetings on Surveillance of Bacterial Meningitis and Pneumonias

Following the success and lessons learned from the six-year study of *S. pneumoniae* in Argentina, Brazil, Colombia, Chile, Mexico and Uruguay, PAHO proposed in 1998, the implementation of a surveillance system to monitor meningitis and pneumonia due to *S. pneumoniae*, *H. influenzae* and *N. meningitidis* that could be expanded to incorporate all countries in the Americas.

A proposal for this surveillance system was elaborated and later discussed by participants during a meeting of Central American countries held in Managua in 1998, which included staff from public health laboratories, epidemiologists and clinicians. Discussions centered on establishing case definitions, inclusion and exclusion criteria, as well as surveillance algorithms and indicators to evaluate the system. The decision was made to base the system on a network of sentinel hospitals, public health laboratories and epidemiology units of Ministries of Health. The proposal was presented and approved at the 1999 Meeting of PAHO's Technical Advisory Group on Vaccine Preventable Diseases.

Concurrently since 1997, sub-regional and national workshops have been held aimed at standardizing laboratory methodologies for isolation, characterization, serotyping and antimicrobial susceptibility testing for *S. pneumoniae* and *H. influenzae*. Participating laboratories have transferred these methodologies to hospitals. The majority of the central laboratories are expected to have the capability to serotype and carry out antimicrobial susceptibility testing in a harmonized way with the rest of the countries.

The surveillance system for *S. pneumoniae* had initially only six member countries, and the quality control systems was located at the National Streptococcus Center in Alberta,

Canada. The latter had the role of assuring the quality and validity of country results. This was performed by sending a panel of unknown isolates to laboratories for characterization and subsequent evaluation, and by receiving from countries a percentage of their isolates to confirm their initial results. As the number of countries grew, this system was no longer feasible and quality control functions were decentralized to three subregional centers. These centers maintain the same initial working relation with Canada, but will implement the system to the assigned countries. The three centers are:

- The National Institute of Public Health of Mexico working with Cuba, Dominican Republic, Guatemala, Haiti, Honduras, El Salvador and Costa Rica.
- The National Institute of Health of Colombia working with Nicaragua, Panama, Ecuador, Peru, Bolivia and the English-speaking Caribbean (via the Center for Caribbean Epidemiology)
- The Institute Adolfo Lutz of Brazil working with Venezuela, Paraguay, Chile, Argentina and Uruguay.

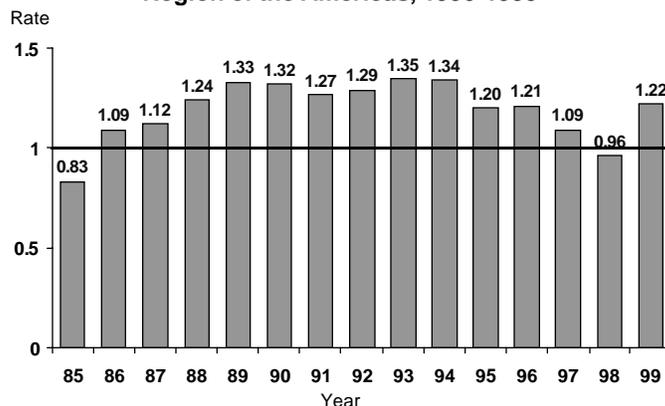
Participating countries are meeting with their respective quality control centers to: provide updates on the national epidemiological situation of meningitis and bacterial pneumonia; review the existing surveillance system for meningitis and bacterial pneumonia; submit proposals for surveillance systems; discuss the proposed system's compatibility with existing surveillance systems or its establishment in countries still lacking one; present the database designed to support surveillance; discuss control and quality systems; and determine areas of PAHO support.

AFP Surveillance Improves in the Americas

After eight years of being polio free, the Americas continue to maintain vaccination coverage rates above 85% and improve their efforts to keep a sensitive epidemiological surveillance system for acute flaccid paralysis. The results of the efforts carried out by countries to strengthen AFP surveillance are shown in Figure 1, which compares the annual rate of AFP cases investigated in the Region in 1998 and 1999. As can be seen, the regional AFP rate increased from 0.96 to 1.22 of annual cases per 100,000 of children under 15 years of age. These improvements have allowed most countries to comply with this important indicator that monitors the frequency of AFP cases being detected and entered into the surveillance system.

As the global eradication initiative come closer to an end, the Americas need to comply with the AFP surveillance indicators, but also prepare the ground for the containment of wild poliovirus still kept at some laboratories.

Figure 1
AFP rate per 100,000 children
under 15 years of age
Region of the Americas, 1990-1999



Source: PESS/PAHO

Coverage Rates: DPT-3, OPV-3, Measles, BCG Region of the Americas, 1998 and 1999

Region/Country	DPT		OPV		Measles		BCG	
	1998	1999	1998	1999	1998	1999	1998	1999
Anguilla	99	96	99	99	96	99	99	99
Antigua & Barbuda	99	99	99	99	99	99	n/a	n/a
Argentina	83	88	88	91	99	97	99	99
Bahamas	89	...	88	...	92	...	n/a	...
Barbados	93	87	93	86	97	86	n/a	n/a
Belize	87	87	87	84	84	82	93	96
Bermuda
Bolivia	76	96	75	89	80	99	85	95
Brazil	94	83	96	84	96	90	99	99
British Virgin Islands	99	90	99	92	99	92	95	99
Canada	97	...	90	...	96	...	n/a	n/a
Cayman Islands	93	94	93	94	94	90	91	92
Chile	92	89	92	89	93	86	96	86
Colombia	70	81	72	75	75	76	82	79
Costa Rica	85	93	85	93	86	92	87	83
Cuba	99	94	97	96	99	99	99	99
Dominica	99	99	99	99	98	99	99	99
Dominican Republic	74	83	73	84	95	94	86	90
Ecuador	85	80	83	70	88	74	98	99
El Salvador	99	94	99	93	98	75	99	72
Grenada	97	88	95	87	97	94	n/a	n/a
Guatemala	89	86	91	86	81	93	88	91
Guyana	90	83	90	83	93	87	92	91
Haiti	40	59	39	58	49	85	52	58
Honduras	96	95	96	95	97	98	96	93
Jamaica	85	81	85	80	85	82	87	85
Mexico	96	96	96	96	96	94	99	99
Montserrat	99	99	99	99	99	99	99	99
Nicaragua	86	83	91	93	99	97	91	99
Panama	98	92	99	96	95	90	99	99
Paraguay	84	77	84	74	78	70	83	87
Peru	98	98	96	96	93	92	96	73
St. Christopher & Nevis	98	99	98	99	99	99	99	99
St. Lucia	88	89	88	89	90	95	85	99
St. Vincent & Grenadines	99	95	99	99	99	87	99	99
Suriname	90	...	90	...	82	...	n/a	...
Trinidad & Tobago	91	90	91	90	90	88	n/a	n/a
Turks & Caicos	99	...	99	...	99	...	99	...
Uruguay	87	91	87	85	86	89	99	99
Venezuela	39	79	64	82	93	79	81	96
TOTAL*	86	93	89	86	86	89	99	96

* Provisional total based on countries reporting, excluding Canada

n/a - Data not applicable

... Data not available

Date updated: 8 May 2000

Dr. Ciro de Quadros awarded Albert B. Sabin Gold Medal

Dr. Ciro de Quadros, Director of the Division of Vaccines and Immunization of the Pan American Health Organization received the prestigious Albert B. Sabin Gold Medal on April 30, 2000. The Sabin Gold Medal is awarded by the Albert B. Sabin Vaccine Foundation, established in 1994, to continue the work of Dr. Albert B. Sabin who is known for his development of the oral poliomyelitis vaccine. Dr. de Quadros was the first non-US citizen and the 8th recipient of the Sabin Gold Medal, given to individuals who have made exemplary contributions to the field of vaccinology and disease prevention.

Dr. de Quadros has devoted his entire career to disease prevention and public health. After receiving his medical and master of public health degrees, he participated in the organization of the first National Epidemiology Center in Brazil. There he was involved in the development of the surveillance and containment strategies for smallpox eradication in Parana State, Brazil. In 1970, Dr. de Quadros was appointed Chief Epidemiologist for the Smallpox Eradication Program in Ethiopia by the World Health Organization. Following the global eradication of smallpox, Dr. de Quadros joined the Pan American Health Organization to initiate the Expanded Program on Immunization for the Region of the Americas. He led the PAHO team in the successful eradication of poliomyelitis in 1991 from the Western Hemisphere.

In his acceptance speech, Dr. de Quadros pointed out to the widening gap between the number of new vaccines used in the industrialized world and those being used in developing countries. "The inequalities are increasing, and will further increase if we do not find an appropriate solution for this problem. Naively, one may think that the heart of the problem is the cost of the new vaccines, which necessarily will have higher prices than the vaccines we used a few years ago."

He also cautioned about thinking that providing free vaccines for the poorer countries was the solution. Rather he emphasized that efforts needed to be focused on placing enough resources to strengthen the health infrastructure. In this context, Dr. de Quadros highlighted the important role played by immunization programs. "I know from my experience with smallpox eradication in Brazil and the Horn of Africa, with polio eradication and now the measles eradication initiative in the Americas, that well-run immunization programs do help strengthen health infrastructures in the countries where they are properly implemented."

Dr. de Quadros concluded by saying that during his entire professional career he was honored to having had the opportunity to collaborate with many dedicated health workers in the Americas. "Those are the unsung heroes and I humbly receive this honor today as a representative of all these individuals."



A. Waak
Mr. H.R. Shepherd (first left), Chairman of the Board, Albert B. Sabin Vaccine Foundation, announcing the award for Dr. Ciro de Quadros, in the presence of Mrs. Heloisa Sabin and Mr. Paulo Roberto de Almeida, Minister-Counselor, Embassy of Brazil.

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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ISSN 0251-4729



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