EPI Newsletter

Expanded Program on Immunization in the Americas

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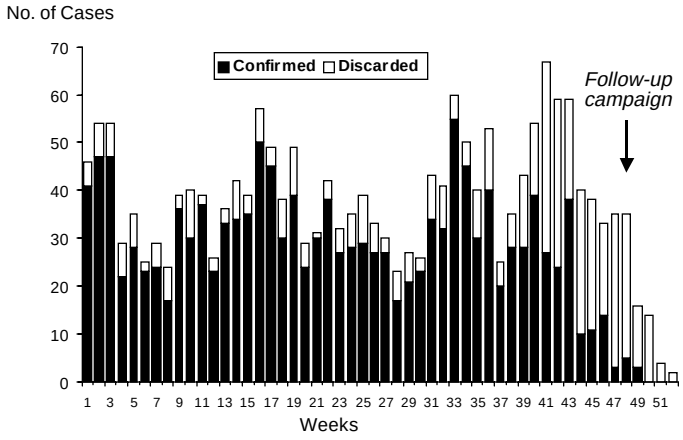
Year 2000: Zero Measles?

Through December 11, 1999, a total of 39,941 suspected measles cases were reported from the countries of the Americas. Of these, 2,803 (7%) have been confirmed, 28,769 (72%) have been discarded, and 8,369 (21%) remain under investigation. Of the total confirmed cases, 2,227 (79%) have laboratory confirmation of measles infection or epidemiological linkage to a laboratory confirmed case and 576 (21%) have been confirmed on clinical grounds alone. The country most affected by measles in 1999 is Bolivia, with 51% of all reported cases in the Region (1,420 confirmed cases). Other countries with significant virus circulation included: Brazil (689 confirmed cases), Argentina (253 confirmed cases), Dominican Republic (206 confirmed cases). The other 235 cases were reported from the United States, Uruguay, Colombia, Chile, Peru, Costa Rica, and Canada, and were mainly secondary cases following international importations among unvaccinated populations

Figure 1
Confirmed and Discarded Measles Cases by Onset Week, Bolivia, 1999



Source: Ministry of Health, Bolivia

Bolivia has continued to suffer large outbreaks in urban areas due to large pockets of under-immunized populations, despite intensified vaccination activities that began in November 1998 and continued through March 1999. The current outbreak, which began in May 1998, produced 1,004 confirmed measles cases in 1998 and appeared to be waning at the end of 1999 (Figure 1). The major foci of measles virus transmission during 1999 were the departments of La Paz (453 cases), Santa Cruz (345 cases), Cochabamba (291 cases), and Beni (149 cases). Beni, a selvatic region of Bolivia with a highly dispersed population, reported the highest incidence rate (42/100,000), with the other three departments reporting incidence rates of 19-20/100,000. Of the total confirmed cases in 1999, 755 (54%) occurred in children under five years of age, and this age group also had the highest overall incidence rate. Of the remaining cases, 336 (25%) were reported in school-age children (5-19 years of age), and 225 (17%) among young adults (20-29 years of age). To control this measles outbreak, the Bolivian government, with the technical support of PAHO, and financial assistance of the World Bank, the Inter-American Development Bank, UNICEF and local NGOs developed an Emergency Plan. Under the Plan, an international team of seven experts was recruited to work with Bolivian health authorities. The Ministry of Health also issued a Ministerial Resolution supporting the implementation of a comprehensive national campaign during December of 1999. A dramatic drop in measles cases has been observed, in the areas undertaking intensive *follow-up* measles vaccination activities.

A similar situation to that of Bolivia became apparent in the Dominican Republic during 1999. The outbreak began due to an importation from Argentina in 1997 in the tourist area of Altagracia. Despite two vaccination efforts in 1998, the virus continued to circulate and subsequently

In this issue:

spread throughout the country in 1999. Over 50% 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. Like Bolivia, the majority of cases were found in young children. The Ministry of Health with PAHO's technical assistance organized a Task Force to ensure the effective control of measles virus transmission in the country. Furthermore, an international team is working with national health authorities to raise coverage rates in a house-to-house vaccination effort, targeted at children between the ages of 6 months and 4 years.

Brazil experienced an impressive decline in measles cases compared to 1998 (a total of 2,930 confirmed cases were reported last year compared to 689 confirmed cases in 1999 through epidemiological week 47). Nevertheless, over 50% of the cases (365) were clinically confirmed, indicating a failure of the surveillance system in conducting a complete epidemiological investigation. The Northeastern portion of the country reported 250 cases (36% of total cases), of which 145 (21%) cases were reported from Pernambuco, with outbreaks in three municipalities. Rio de Janeiro and Sao Paulo reported 117 and 126 cases, respectively. A recent outbreak was also reported in an army battalion in the state of Mato Grosso do Sul. Age groups most affected have been children under one year of age (incidence of 3.48/100,000), and 1-4 year olds (0.73/100,000)

Argentina, which reported the majority of cases in 1998, notified only 245 cases as of December, 1999. These cases occurred mainly in the provinces of Tucuman, Chaco, San Juan and in the province of Buenos Aires. Age groups most affected were children under one year (7.5/100,000), followed by children one year of age (4.72/100,000), and 2-5 year olds (0.75/100,000). An Emergency Plan of Action was developed in 1999 and four national epidemiologists were hired to assist Argentinian health authorities in eradication efforts. Since mid-September, only four confirmed cases have been reported, indicating a sharp reduction in the transmission of measles virus.

In Colombia, an active search was conducted in the largest eight cities to determine if measles virus was circulating. This action was taken to respond to laboratory confirmed measles cases occurring in isolation in 1998 and 1999, without any known source of infection. PAHO and Health Ministry officials reviewed all available cases and surveillance data for both years and determined that only one department had a clustering of measles cases, specially in an urban area, which suggested measles virus circulation. A review of case and laboratory data from the other sporadic laboratory confirmed measles cases with no source of infection indicated that the majority of them were post-vaccine associated cases. More importantly, because of the ongoing processes of health reform and decentralization, the quality measles surveillance is unknown or at best unreliable because many of the new health care providers are not part of the formal national surveillance system. In order to quickly determine if measles virus was still circulating, the Ministry of Health accepted PAHO's recommendation to carry out an active search in the eight largest urban centers. The active search was carried out between November and December 1999. No additional confirmed laboratory measles cases were found.

Costa Rica reported three imported measles cases traced to a Costa Rican resident exposed to measles while visiting Peru. This person subsequently infected two additional persons in their household. Of note, this adult was the only unvaccinated person for measles in the tour group to Peru, and the other two household members were also unvaccinated. An active search in the hospital where the cases were attended, and in the surrounding area revealed no spread of the virus. High coverage with measles vaccine in the country was an essential barrier to prevent spread of the virus.

Editorial Note: The millennium ends on a high note for vaccine-preventable diseases: smallpox was eradicated worldwide in 1979, poliomyelitis was eradicated from the Western Hemisphere in 1991, and the Region of Americas is on the brink of eradicating the indigenous transmission of measles virus. Since 1997, confirmed measles cases in the Americas have declined 95% from a high of 53,661 cases in 1997, to 2,803 confirmed cases this year. Reaching the final unvaccinated population and breaking the chains of transmission will require the utmost dedication to the eradication strategy if this milestone is to be reached by the end of the year 2000. Vaccination of susceptible individuals is the keystone to success. To achieve measles eradication all countries in the Americas should use the same tools.These tools should include:

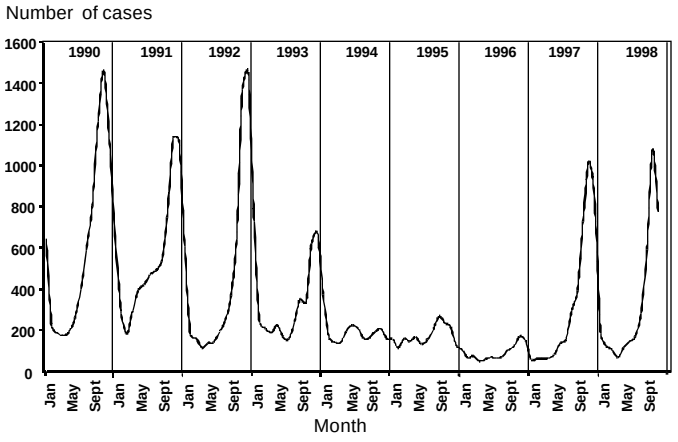
- Carry out *timely follow-up* measles campaigns when the pool of susceptibles approximates the number of children in an average birth cohort
- Reach the goal of ≥95% vaccination coverage in all municipalities
- Assure the availability of the necessary vaccine supply at the central, regional and local level at all times
- Avoid missed opportunities: all contacts between children and health care workers should be used as an opportunity to vaccinate, when appropriate
- Identify hard-to-reach population groups and implement social mobilization activities that enhance their compliance with vaccination efforts
- Alert health care workers about the regional eradication initiative and stress the importance of their cooperation to reach this goal
- Health care workers in contact with children or infectious diseases should be vaccinated against measles regardless of vaccination history
- Ensure complete epidemiological investigations of all suspected measles cases. A suspected measles case is any: "Patient in whom a health care provider suspects the possibility of measles"
- Assure that all vaccination activities contemplate the safe disposal and incineration of all needles and syringes

Rubella Campaign in Chile*

Background

In 1990, Chile began immunizing children 1 year of age with measles, mumps and rubella (MMR) vaccine, adding a booster dose in 1993 for children 6 years of age. Between 1992 and 1996 a decline of rubella incidence was observed, but in 1997 and 1998 outbreaks (Figure 1) were reported in various health services of the country. These outbreaks showed a shift in the age groups being affected with rubella cases towards adolescents and young adults, with an increase in the incidence of the disease beginning at the age of 10 and 11 years. In order to prevent the occurrence of congenital rubella syndrome (CRS) cases, the Ministry of Health in Chile designed in 1999 a strategy of three components: a) a mass vaccination campaign aimed at women between the ages 10 and 29 years; b) strengthening Chile's laboratory diagnostic capabilities for rubella; and c) the establishment of a surveillance system for congenital rubella syndrome.

Figure 1
Seasonal rubella transmission in Chile by month, 1990-1998



Source: Ministry of Health, Chile

Mass Rubella Campaign

A national mass vaccination campaign was carried out between August and September 1999, with the participation of the country's 28 health services, private health institutions, and the Armed Forces. The target population of the 30-day campaign was non-pregnant women between 10-29 years. Chilean Health authorities decided to target the 10-29 age group based on data showing that rubella outbreaks were affecting primarily adolescent and young adult women in their childbearing age. During the 1997 and 1998 rubella outbreaks, over 70% of cases corresponded to people between 10 and 29 years (74% in 1997 and 78% in 1998), half of these were women. Women in the 10-29 age group were considered to be at highest risk for rubella infection that could result in a CRS outcome of their newborn infants. The campaign sought to immediately control the problem of CRS, by dramatically reducing the number of women of childbearing age likely to become infected. Younger cohorts were already covered by vaccination efforts at 1 year of age and older cohorts had natural immunity. This was reflected by the low incidence rates of rubella shown in these two cohorts, as well as by the low number of susceptible population.

The campaign was divided into two phases. The second was added to reach women within the target age group (6%) that were pregnant at the time of the campaign. This group was vaccinated post-partum, and the second phase is still underway.

The national reference laboratory carried out a differential diagnosis of rubella for the remaining reported rashes. A surveillance system for CRS began operating mid-September 1999, at hospitals and selected reference centers and was evaluated at the end of 1999.

The campaign utilized the monovalent rubella vaccine (vaccine strain Wistar AR 27/3M). There were approximately 6,000 vaccinators, working from 4,000 vaccination posts, as well as from private posts and those organized by the Armed Forces. An intensive communications campaign through radio, television and the press was carried prior to the campaign.

Current data indicate that the use of rubella vaccine during pregnancy is safe, presenting no risk of CRS for the fetus. However, Chile's rubella campaign followed international recommendations and decided that pregnant women would not be vaccinated. (Refer to *EPI Newsletter* of June 1999, pg. 3, for recommendations of PAHO's Technical Advisory Group on Vaccine-Preventable Diseases on rubella vaccination during pregnancy).

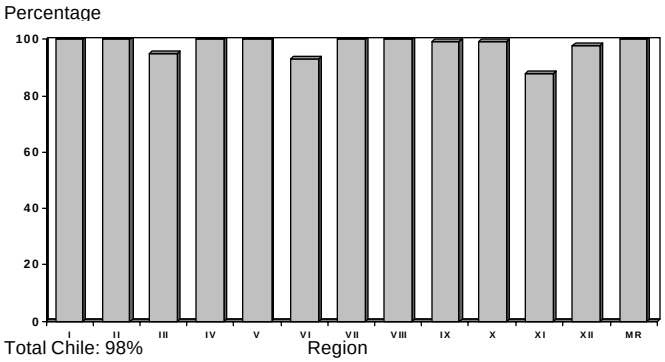
Results

The estimated target population for the whole campaign was 2,507,448 women between the ages of 10 and 29 years. For the second phase, the target population is 153,173 women, who are to be vaccinated during the nine months following the mass campaign. Results obtained are based on data received from Chile's Epidemiology Department of women vaccinated through September 17. The mass campaign was finished by September 10 in most health areas, except in two health services where it took an extra week due to bad weather conditions.

At the national level, vaccination coverage reached 98%, ranging between 88 and 100% in the different regions (Figure 2). The success achieved can be attributed in part to the high-level consciousness of women about their own health and that of their families. Moreover, the success can also be attributed to the efficiency, effectiveness and commitment of the health teams involved in the campaign, the

clear and precise messages disseminated by the mass media.

Figure 2
Vaccination coverage of mass rubella campaign by region, Chile, 1999 (Phase I)



MR= Metropolitan Region

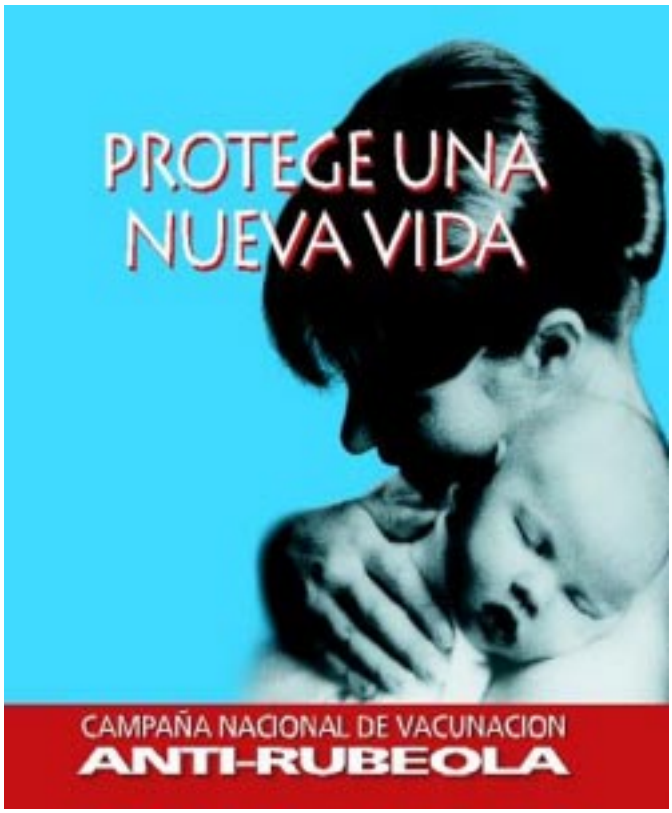
The total number of women vaccinated were 2,467.924. Based on age group the numbers were as follows: between 10 and 14 years, 701,605 (102%); between 15 and 19 years 601, 853 (97%); between 20 and 24 years, 547,479 (92%); between 25 and 29 years, 616,987 (102%). Women between 20 and 24 years show the lowest vaccination coverage at the national level, with 92%. This group has the highest birth rate, therefore, a greater percentage of them would have been pregnant at the time of the first vaccination phase. This means that a greater proportion of women being vaccinated during the second phase should correspond to this age group.

The Ministry of Health implemented a surveillance system with the following objectives: 1) to provide information on the effectiveness of the campaign and policies, to measure the impact on the occurrence of rubella and CRS. 2) to collaborate in identifying groups of people or geographical areas where additional control efforts are needed to reduce disease incidence, and 3) to evaluate the vaccine effectiveness, duration of vaccine-induced immunity, as well as other aspects related to the efficacy and safety of the vaccine.

Source: *Summary of the report on the *Strategy for the Prevention of Congenital Rubella Syndrome in Chile.* For a complete version, contact: X. Aguilera; A. Guerrero; C. Gonzalez; M. Concha; A. Olea; M. Chiu; V. Sotomayor; D. Ulloa; H. Giorgi; and V. Child at the Department of Epidemiology, Ministry of Health, Mac- Iver 541, Santiago, Chile.

Editorial Note: PAHO congratulates the Ministry of Health in Chile for the high vaccination coverage attained in their recent mass rubella campaign and joins the Ministry in commending the great dedication, effort, and work of Chilean health care workers to reach this high coverage. PAHO as well as other Member States of the Region will monitor with great anticipation the impact of the campaign on reducing rubella virus circulation in females in child bearing age, and thereby the occurrence of CRS.

PAHO recommends that countries wishing to promptly prevent and control both rubella and CRS, should consider using a measles containing vaccine. The use of measles vaccine will also support the measles eradication efforts underway in the Region of the Americas (refer to Final Report of Conclusions and Recommendations of PAHO's Twelfth Meeting of the Technical Advisory Group on Vaccine-Preventable Diseases, Guatemala, 1997.)



New at the Immunization's Website

Evaluation Tool of National Immunization Programs in the Americas. Click under **Information Products**. The site contains the methodology developed by the Pan America Health Organization's Division of Vaccines and Immunization in 1980, for carrying out evaluations of national immunization programs. The methodology has been updated and recently implemented in Brazil, Bolivia, Ecuador, the Dominican Republic, Mexico, Paraguay Peru and Venezuela. Colombia was the first country in the Americas to carry out an evaluation in November of 1980.

These evaluations take a comprehensive look into an immunization program's strength and weaknesses, its efficiency and effectiveness, its impact on disease burden, as well as its capacity to adapt to new demands. A multidisciplinary team under the coordination of national health authorities is assembled and generally joined by a group of international experts. Following each evaluation, the team presents its findings and recommendations, and a five-year Plan of Action. In 1999, presentations of evaluation results were also done at national congresses and for Ministries of Finance and Planning.

http://www.paho.org/english/hvp/hvp_home.htm

Collection and handling of laboratory samples for measles eradication and rubella control

Blood samples from suspected cases:

- In outbreak situations, blood samples should be taken from the first few suspected measles or rubella cases of the outbreak and from all other cases that do not occur in the same municipality or district. Samples may also be taken from any atypical or unusual cases. Samples are not needed from cases epidemiologically linked to other already confirmed cases.
- When sporadic suspected measles or rubella cases occur (dispersed geographically and/or in time), blood samples should be taken from every case.
- Blood samples from all suspected rubella cases that are IgM negative for rubella should be tested for measles, ideally within 24 hours* and vice versa.
- Blood samples from at least 10% of the suspected dengue cases with rash that are IgM negative for dengue should be regularly tested for measles*.

Samples for viral isolation from suspected measles cases:

- In outbreak situations, urine samples should be taken from the first few cases of the outbreak (5-10 samples). If attempts to isolate virus are unsuccessful, then additional urine samples should be taken from new cases as they occur. Urine samples should also be taken from cases that do not occur in the same municipality or district. They may also be taken from any atypical or unusual cases.
- When sporadic cases occur (dispersed geographically and/or in time), urine samples should be taken from every case at the first opportunity.
- Whenever urine samples cannot be taken (i.e. in some young children), a wipe of the nose and throat with a sterile swab (nasopharyngeal swab) should be taken instead.
- Ideally, samples for virus isolation should be taken within 1-3 days after rash onset, and no more than 5 days after rash onset. However, for sporadic cases, because there may be limited opportunities to take the sample, samples can be taken up to 7 days after rash onset.
- Samples for virus isolation should be shipped to the laboratory indicated in your country as soon as possible.
- The national laboratory responsible for managing measles specimens will test (or forward to a reference laboratory for testing) the specimens of those cases with measles serum IgM positive results.
- Ideally, only half of the sample should be used for viral isolation. The other half should be stored at minus 40- 70 C° as a backup in case of contamination or other technical problems with the sample tested.

Samples for viral isolation of suspected rubella cases:

- In outbreak situations, nasopharyngeal swabs should be taken from the first few cases of the outbreak (5-10 samples). If attempts to isolate virus are unsuccessful, then additional samples should be taken from new cases as they occur. Nasopharyngeal swabs should be used to wipe the nose and throat. The virus is extremely cell-associated, so attempt to swab the throat and nasal passages to collect epithelial cells. Place both swabs (from the nose and throat) in a sterile tube containing 0.5-2 ml of viral transport media.

Storage and transport of samples for viral isolation

- 50-100 ml (1.5-3 ounces) of urine should be taken in a sterile container. If no sterile container is available, a clean container can be boiled and used instead.
- The urine should be kept refrigerated at 4-8 C° until it can be centrifuged.
- Ideally, all urine samples should be cold before centrifugation.
- The urine should be centrifuged, ideally on the same day it was taken, at 1500 RPM (about 500 x g) for 5 minutes. A refrigerated centrifuge is ***not*** a requirement.
- The pellet should be immediately re-suspended in 0.5-2 ml of viral transport media (VTM)**.
- In the field, centrifuged urine and nasopharyngeal swab specimens can be refrigerated at 4-8 C° for up to five days until they can be stored in a –70 or –40 C° freezer.
- As soon as possible, the sample should be sent to a laboratory equipped with –70 or –40 C° freezers. ***Because of the risk of damaging the viruses, samples should never be kept at –20 C°.***
- When samples are ready to be sent to the national laboratory, they should be shipped in coolers with ice packs.
- In the case of samples that have been frozen at –70 or –40 C°, they must be shipped in dry ice to the national laboratory.
- If for any reason centrifugation is not possible, ***the urine can still be shipped immediately to the national laboratory in coolers with ice packs***. It might still be viable for virus isolation if it reaches the laboratory within five days from the day it was taken**.**
- In the case of a nasopharyngeal swab, the swab should not be centrifuged. It should be placed in a sterile tube with 0.5-2 ml of VTM.

Information regarding the samples

- Information to be sent with the sample should include the following:

  - unique identifier number (MESS number where available)

  - full address and complete phone number to which results should be reported

  - age of patient

  - date of rash onset

- date of collection of sample
- date of last vaccination with a measles-containing vaccine
- date of last vaccination with a rubella-containing vaccine
- if the case is sporadic or part of an outbreak.

- Paper documents should be well protected from the ice in a well-sealed plastic bag or similar.
- The laboratory that receives the samples should record the condition of the sample upon arrival (did the container leak?, was there an ice pack?, were the contents kept cold in transit from the point of collection?). This information should be shared with the sender so errors can be corrected in future shipments.

* In the case of laboratory–confirmed rubella or dengue outbreaks, the total number of samples that are negative for either rubella or dengue might be overwhelming. In such a case, the surveillance team, in conjunction with the laboratory, should decide which samples to test for measles.

** VTM should be made available to all health centers by the national laboratory of each country. VTM usually contains sterile phosphate buffered saline (PBS) or suitable isotonic solution such as Hank's BSS, etc., containing antibiotics (100 units/ml penicillin, or 100 mg/ml streptomycin) and either 2 % fetal bovine serum or 0.5 % gelatin in plastic, screwcap, centrifuge tubes. VTM should be kept either frozen or refrigerated until it is used.

Update on Global Polio Eradication

The world is about to witness another public health victory with the achievement of the global poliomyelitis eradication. Since the launch of the global polio eradication campaign at the World Health Assembly in 1988, countries have continued to make steady progress towards successfully interrupting the circulation of wild poliovirus. The number of polio cases has decreased from an estimated 350,000 in 1988, to some 5,200 reported cases in 1999. The proportion of the world's children living in polio-infected areas has dropped from 90% to less than 50 percent. The disease has already been eradicated from Europe, the countries of the Western Pacific, a large portions of the Middle East, Northern and Southern Africa. In 1991, the Americas became the first region in the world to eradicate polio.

At this point, the conclusion of the global eradication initiative depends on the efforts carried out by 30 countries in sub-Saharan Africa and South Asia. Many of these have either been affected by civil conflict or remain reservoirs of poliovirus. India, with 70% of the world's remaining polio cases holds the key to the success of global eradication. WHO plans to accelerate its eradication and surveillance efforts in the endemic countries. Extra rounds of National Immunization Days (NIDs) in 2000 and 2001 will be conducted in Afghanistan, Angola, Bangladesh, Democratic Republic of the Congo, Ethiopia, India, Nigeria, Pakistan, Somalia and Sudan.

In a recent joint appearance the heads of WHO and UNICEF appealed to the leaders of these 30 countries to provide leadership for additional immunization activities, to allocate sufficient resources to support NIDs and routine immunization, as well as surveillance, to mobilize support from the national to the community level, and to facilitate truces in conflict areas. The longer intense poliovirus transmission continues in sub-Saharan Africa and South Asia, the higher the risk of re-infecting areas that are now free of the disease. Major outbreaks in Angola and Iraq in 1999 demonstrate the fragility of the progress that has been made. Furthermore, a delay in achieving the target on time would increase the total cost of eradication by as much as US$ 100 million each year. There is also concern of the difficulties of sustaining current levels of funding for more than 24 to 36 months, especially in polio-free countries that would need to maintain NIDs to protect themselves from importations.

The international community has been responding to the call for additional financial resources to meet the eradication challenge. Efforts are also being made to improve the capacity of the UN system in responding to the demands of an accelerated program, by better planning and by enhanced coordination with vaccine manufacturers and donor governments, to avoid any disruption in scheduled immunization days. Other efforts underway include the assurance of cease fire, or safe working environment in areas of conflict, to gain access to unreached communities. It has been estimated that when all countries are certified as polio free, approximately US$ 1.5 billion in treatment will be saved per year. The Region of the Americas best way to support the global efforts is by maintaining its surveillance indicators for acute flaccid paralysis and high immunization coverage rates!

Source: World Health Organization

AFP Surveillance Indicators, 1999*

Country	80% weekly reporting units	80% of cases investigated within 48 hours	80% of cases with 1 adequate stool sample taken	AFP Rate ≥ 1:100,000 in children < 15 years
Chile	■	■	■	■
Colombia	■	■	■	■
Honduras	■	■	■	■
Mexico	■	■	■	■
Nicaragua	■	■	■	■
Cuba	■	■	■	
Equador		■	■	■
Argentina	■	■		
El Salvador		■		■
Guatemala		■		■
Panama	■		■	
Peru		■		■
Venezuela		■	■	
Bolivia				■
Brazil		■		
CAREC	■			
Dominican Republic		■		
Paraguay	■			
Uruguay		■		
Costa Rica				
Haiti				

* Data as of 4 December 1999
Source: HVP/PAHO (PESS)

Reported Cases of Selected Diseases

Number of reported cases of measles, poliomyelitis, tetanus, diphtheria, and whooping cough, from 1 January 1999 to date of last report, and the same epidemiological period in 1998, by country.

Country/Territory	Date of last report	Measles				Polio		Tetanus				Diphtheria		Whooping Cough	
		Confirmed 1999			Confir-med*			Non Neonatal		Neonatal					
		Labo-ratory	Clini-cally	Total	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998
Anguilla	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Antigua & Barbuda	13-Nov	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Argentina	13-Nov	238	...	238	7,054	0	0	15	20	2	0	0	2	525	740
Bahamas	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barbados	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belize	13-Nov	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Bermuda	13-Nov	0	0	0	0	0	0	1	1	0	0	0	0	0	2
Bolivia	13-Nov	1,203	124	1,327	661	0	0	1	6	2	9	2	6	14	43
Brazil	13-Nov	280	339	619	2,006	0	0	...	...	...	...	170	139	1,163	1,030
British Virgin Islands	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada	13-Nov	20	0	20	11	0	0	0	1	...	...	1	0	4,528	5,887
Cayman Islands	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	7	0
Chile	13-Nov	29	0	29	0	0	0	14	15	1	0	0	0	1,781	2,482
Colombia	13-Nov	10	25	35	64	0	0	6	5	14	13	0	2	211	191
Costa Rica	13-Nov	27	3	30	2	0	0	1	0	0	0	0	0	18	1
Cuba	13-Nov	0	0	0	0	0	0	2	2	0	0	0	0	0	0
Dominica	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dominican Republic	13-Nov	202	4	206	8	0	0	17	5	1	0	12	10	13	13
Ecuador	13-Nov	0	0	0	0	0	0	25	15	6	18	2	19	150	174
El Salvador	13-Nov	0	0	0	0	0	0	7	12	3	0	0	0	3	4
French Guiana	...	...	...	...	...	0	0	...	...	...	...	...	...	...	...
Grenada	13-Nov	0	0	0	0	0	0	0	1	0	0	0	0	4	0
Guadeloupe	13-Nov	...	...	...	...	0	0	...	...	...	...	...	...	...	...
Guatemala	13-Nov	0	0	0	1	0	0	7	3	2	6	0	0	301	66
Guyana	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haiti	13-Nov	0	0	0	3	0	0	...	...	11	11	4	0	18	4
Honduras	13-Nov	0	0	0	0	0	0	6	11	0	3	0	0	19	35
Jamaica	13-Nov	0	0	0	1	0	0	6	8	0	1	0	0	14	0
Martinique	...	...	...	...	...	0	0	...	...	...	...	...	...	...	...
Mexico	13-Nov	0	0	0	0	0	0	93	125	7	25	0	0	51	148
Montserrat	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Netherlands Antilles	...	...	...	...	...	0	0	...	...	...	...	...	...	...	...
Nicaragua	13-Nov	0	0	0	0	0	0	5	7	0	0	0	0	18	1
Panama	13-Nov	0	0	0	0	0	0	4	1	1	0	0	0	212	140
Paraguay	13-Nov	0	0	0	70	0	0	17	18	8	12	0	0	25	35
Peru	13-Nov	0	2	2	7	0	0	65	81	15	14	4	2	1,435	2,268
Puerto Rico	13-Nov	0	—	0	0	0	0	...	...	...	...	...	...	16	6
St Vincent/Grenadines	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Kitts/Nevis	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Lucia	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Suriname	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trinidad & Tobago	13-Nov	0	0	0	0	0	0	7	2	0	0	0	0	0	1
Turks & Caicos	13-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United States	13-Nov	79	—	79	79	0	0	30	34	...	...	2	1	4,829	5,754
Uruguay	13-Nov	34	0	34	1	0	0	0	2	0	0	0	0	1	0
Venezuela	13-Nov	0	0	0	4	0	0	36	38	4	6	0	0	455	528
TOTAL		**2,122**	**497**	**2,619**	**9,972**	**0**	**0**	**367**	**414**	**77**	**118**	**197**	**181**	**15,811**	**19,554**

... Data not available.
— Clinically confirmed cases are not reported.
* Laboratory and clinically confirmed cases.

Impact of *Haemophilus influenzae* vaccine in Colombia

In 1994, the Microbiology Group of the National Institute of Health in Bogotá, Colombia organized a laboratory network for monitoring some etiologic agents responsible for acute bacterial meningitis (MBA), such as *H. influenzae, Streptococcus pneumoniae and Neisseria meningitidis*. The objectives of the program were to standardize laboratory procedures for bacteriological diagnosis and ensure its quality, to carry out surveillance of serotypes and patterns of antimicrobial susceptibility, as well as to provide reliable and timely information. This initiative included the participation of 14 public health laboratories in the country.

Following recommendations of PAHO, the Ministry of Health initiated in May 1998, the use of a conjugated vaccine against *Haemophilus influenzae* type b (Hib), targeting children under 1 year of age. In December of that same year vaccination coverage had reached 50%. With the purpose of evaluating the impact of this intervention, a trend analysis of the disease was carried out, utilizing data of the laboratory network for MBA. Towards this end, the number of MBA cases due to Hib (laboratory confirmed) in children under 1 year occurring between June 1994 and May 1999 was analyzed. The quality of the surveillance system was evaluated by comparing the cases of MBA caused by Hib with those caused by *S. pneumoniae* in children under 5 years of age, for the same period.

Between June 1994 and May 1999, the microbiology group confirmed a total of 1,166 bacterial isolations: 505 (43.3%) of *H. influenzae;* 361 (31%) of *S. pneumoniae*, and 300 (25.7%) of *Neisseria meningitidis*. Of the 464 *H. influenzae* isolations that had information of the patient's age, 286 (62%) corresponded to children under 1year of age, and of these 99% were of *H. influenzae* type b.

Between June 1994 and May 1999, the annual distribution of Hib isolation was the following: 45, 37, 61, 64 and 31. Based on the trend analysis of the disease, the expected number of cases in children under 1 year for this last period was of 52; however, only 31 cases were observed (p = 0.0005). During the same periods, 25, 18, 33, 37 and 25 cases of MBA by *S. pneumoniae* were observed in children under 1 year of age, and 32, 26, 43, 48 and 42 cases in children under 5 years of age. According to the trend analysis of the disease for the last period, 28 cases were expected in the under 1 age-group and 25 occurred (p=0,74); and in the under 5 age-group, 37 were expected and 42 were observed (p=0,22).

The results of this analysis show a 40% reduction in the number of MBA cases caused by *H. influenzae* type b in the under 1 age-group for the period studied. This reduction is not attributable to changes in the surveillance system, as demonstrated by the behavior of the isolations of *S. pneumoniae*, where a slight increase was seen between the expected and observed numbers. It is concluded that very possibly the introduction of the conjugated vaccine already has had an impact in the reduction of MBA cases caused by *Haemophilus influenzae* type b.

Source: For further information, please contact Clara Ines Agudelo and Fernando de la Hoz at the Center of Disease Control of the National Institute of Health in Bogota, Colombia

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