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IMMUNIZE AND PROTECT YOUR CHILDREN

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Towards measles eradication in the Americas: The last inch?

In 1994, countries in the Region of the Americas set a goal of interrupting indigenous measles transmission by the end of 2000, using a vaccination strategy developed by the Pan American Health Organization (PAHO). Since then, great progress has been made towards the goal. In 2001, the total number of confirmed measles cases in the Region reached a record low of 541 cases, a 99% reduction compared to 1990 (Figure 1). During 2001, the Dominican Republic and Haiti successfully interrupted measles transmission, effectively ending known indigenous transmission of the d6 measles virus genotype. This genotype had circulated widely in the region since at least 1995, causing nationwide outbreaks in Brazil, Argentina, Bolivia, the Dominican Republic and Haiti during 1997-2001.

A new measles genotype (d9) was introduced to the Region in August, 2001, by a Venezuelan tourist returning from Europe. Since then, until September 7, 2002, a total of 2,491 cases have been confirmed in Venezuela and 125 in neighboring Colombia.

Measles in the Region

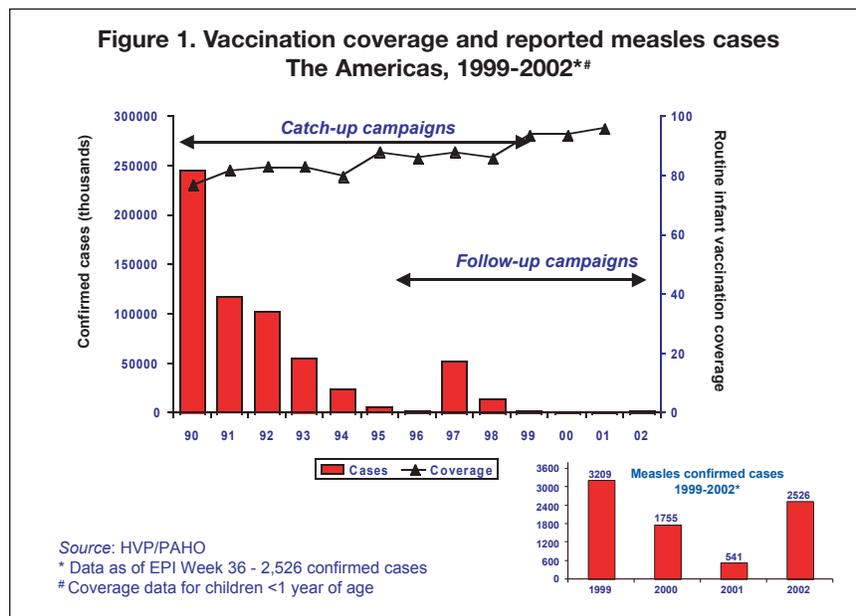
Routine (*keep-up*) vaccination coverage in the Region has

increased from 80% in 1994, to 94% in 2000 and 96% in 2001. Measles vaccination coverage for 2000 by country ranged between 75% and 99%. Lowest reported coverage rates were from Colombia (75%), Haiti (80%), Belize (82%), Venezuela and Costa Rica (84%), Guyana (86%), Jamaica and the Dominican Republic (88%). Measles vaccination coverage for 2001 by country ranged between 53% and 99%. Lowest reported coverage rate was from Haiti (53%), all others had reported coverage above 80%.

In the Region of the Americas, from 1990 to 1996, measles cases declined from approximately 250,000 to 2,109 confirmed cases. In 1997 there was a resurgence of measles virus circulation, with

53,683 confirmed cases reported, 52,284 (97%) of them from Brazil. The outbreak spread to Argentina and Bolivia, where the largest number of measles cases occurred in the Region during 1998 and 1999, respectively. In 1998, there were 14,332 confirmed cases reported from 17 (41%) of the 41 countries that report to PAHO. Argentina (10,229 cases), followed by Brazil (2,781 cases) had the highest number of cases. During 1999 through 2000, 28 (68%) of 41 countries that report to PAHO, including Cuba, the English-speaking Caribbean countries, and most of Central and South America, reported no measles cases. In

**Figure 1. Vaccination coverage and reported measles cases
The Americas, 1999-2002****



Source: HVP/PAHO
* Data as of EPI Week 36 - 2,526 confirmed cases
** Coverage data for children <1 year of age

In this issue:

Towards measles eradication in the Americas: The last inch?	1
Lessons learned: First two years of regional rubella surveillance	3

Immunization programs of the southern cone and Brazil reviewed	6
Immunization goals in the global sustainable development and poverty reduction agenda	8

1999, 3,209 confirmed cases were reported from 11 countries, 78% fewer cases than in 1998 and 94% fewer than in 1997 (Figure 1). In 1999, indigenous transmission occurred in four countries: Bolivia (1,441 cases), Brazil (908), Argentina (313), and Dominican Republic (274). Also in 1999, Canada, Chile, Costa Rica, Mexico, Peru, Uruguay and the United States reported measles importations, but secondary transmission was limited as a result of high measles vaccination coverage. The largest outbreak linked to measles importation occurred in Canada, where 165 confirmed cases were linked to an importation from Bolivia.

In 2000, the number of measles confirmed cases in the Americas decreased to 1,755 (Figure 1). Indigenous transmission still occurred in Argentina, Brazil, Bolivia, the Dominican Republic, and Haiti. Only 16 (<1%) of the 12,010 reporting municipalities in the Region reported confirmed measles cases during this period.

During 2001, a total of 541 confirmed measles cases were reported in the Americas. Indigenous transmission was reported only in three countries, Haiti and the Dominican Republic, in the Hispaniola island, and Venezuela. Dominican Republic's last confirmed case occurred in June, 2001, and Haiti's last case was reported in September, 2001. In August, 2001, a measles outbreak began in Venezuela, a measles virus from a new genotype (d9) that was introduced by a traveler returning from Europe. During August-December, 2001, 109 measles cases have been reported in Venezuela following this importation. The outbreak spread to Colombia during January, 2002. Since then, Venezuela and Colombia have become the only countries with known indigenous transmission in the Region.

Venezuela

During 1997-2000, routine measles vaccination coverage ranged from 65% to 93%. In September 2001, estimated coverage decreased to 58%, and was lower in states near the border with Colombia (e.g., Falcón, 44%; Zulia, 34%). The source case of the outbreak, a 39-year-old male, had rash onset on August 29, 2001, a day before returning to the State of Falcón from a trip to Switzerland, Germany, and Spain during August 4-30. The first case reported, notified on September 28, was his 35-year-old brother who had rash onset on September 23. Since the beginning of the outbreak until September 7, 2002, Venezuela reported 7,007 suspected measles cases, of which 2,491 were laboratory or epidemiologically confirmed. The outbreak peaked in week 11 of 2002 and has affected 17 (70%) of the 24 States in Venezuela. A total of 2,098 (84%) cases were from Zulia, 202 (8%) from Falcón, and 191 (8%) from the other 14 states. Nationally, the age groups most affected were children aged <1 year (120 cases per 100,000 population), followed by children aged 1-4 years (26 per 100,000), and young adults aged 20-29 years (12 per 100,000).

Measles virus samples were collected from cases in Zulia from November 2001 through January 2002. Genetic sequencing indicated that the virus was not similar to viruses encountered previously in the region or to the reference genotype

strains available on the measles sequence database. A close match was identified from virus samples taken from cases imported into Australia from Indonesia as early as 1999 and which have been given the proposed designation of genotype d9.

During November, 2001-January, 2002, a follow-up measles vaccination campaign was implemented targeting 2,216,001 children aged 1 to 4 years, 16 of 24 states reported coverage of 100%. Even so, the outbreak continued with cases occurring in all age groups. House-to-house monitoring of vaccination coverage revealed pockets of unvaccinated children. Since March 2002, a nationwide vaccination campaign targeting 5,865,687 children ages 6 months to 14 years and an estimated 5,511,153 high-risk adults in urban, peri-urban and rural areas (including health care workers, tourists, factory workers, soldiers, university students, displaced populations and migrants) was implemented. Since then, measles circulation has decreased significantly. The states most affected, Zulia and Falcón, report no cases since weeks 31 and 20, respectively, and the average number of cases by week during the last 4 weeks decreased to 2.

Colombia

After achieving high vaccination coverage (93%) in 1996, measles coverage declined to around 75% during 1997-2000. Coverage increased to 92% during 2001. The first confirmed case, a 7-year-old from the Atlantic coastal area, had rash onset on January 20, 2002, and reported prior contact with a confirmed measles case in Zulia, Venezuela. As of September 7 (week 36), 3,122 suspected measles cases have been reported in Colombia; of them, 125 had been confirmed as measles. Confirmed cases have occurred in 24 municipalities (14 of them on the Atlantic Coast or bordering Venezuela) from 11 (33%) of the 33 national departments. As of September 7, 2002, the average number of confirmed cases by week for the last 4 weeks is 6.5. The age groups most affected were children age <5 years (1.37 cases per 100,000), followed by children 5 to 9 years of age (0.36 per 100,000), and those aged 25 to 29 years (0.34 per 100,000).

Control activities being implemented include: (a) a door-to-door measles vaccination campaign in high-risk municipalities as part of a national vaccination campaign for approximately 4.2 million children ages 6 months-5 years and other high-risk groups (health workers and travelers), (b) house-to-house vaccination and coverage monitoring in high-risk areas, (c) strengthening of epidemiological surveillance nationwide, and (d) increased training on case investigation and outbreak control all over the country. As of September 15, 2002, 3,362,281 children (80%) in the target group had been vaccinated.

During these outbreaks, measles surveillance has been heightened, using active case searches in both countries, with 3,122 suspected cases detected (7.1 per 100,000 population) in Colombia and 6,380 (26.5 per 100,000) in Venezuela. Technical and financial resources have been provided by international organizations, including PAHO, CDC, and UNICEF and these have contributed to the success of the vaccination efforts.

Editorial Note: The Region's success in interrupting transmission of the d6 measles virus genotype is evidence that with the commitment of a whole Region to measles eradication the goal can be achieved. The reintroduction of measles and its subsequent transmission in Venezuela and exportation to Colombia are reminders that, until global measles eradication is achieved, countries in the Americas are vulnerable to importations. However, these importations should not result in sustained measles transmission if vaccination coverage is maintained at high levels (>95%) in all municipalities, and measles *follow up* campaigns are conducted on time.

The current outbreak in Venezuela and Colombia illustrates, however, the dangers of failing to maintain high routine vaccination coverage, to effectively implement PAHO's recommended *follow-up* measles vaccination campaigns every four years, and to maintain timely surveillance. Also, experience gained in the Americas throughout the past four years has pointed towards the need of validating the measles vaccination effort at the lowest geographical level through house-to-house monitoring, and to identify localities with persistent low vaccination coverage within countries that report adequate aggregate coverage level. Based on the results of outbreak investigations in the Americas, PAHO has targeted, during

outbreaks, the vaccination of population groups considered at high-risk for sustaining measles transmission and for transmitting measles to susceptible persons of other groups.

To reach, maintain, and assess the interruption of indigenous measles transmission, countries in the Region of the Americas should follow all PAHO recommendations, namely: (a) follow the recommended vaccination strategies (*catch-up*, *keep-up* and *follow-up*), reaching 95% coverage by municipality, (b) monitor coverage *house-to-house* at the local level during supervisions, vaccination campaigns and mop-up operations, and implement corrective measures immediately if the vaccination effort has been insufficient, (c) investigate all cases and outbreaks within 48 hours of reporting following PAHO's guidelines, (d) perform routine measles surveillance, validate compliance weekly using PAHO indicators, and perform regular active case searches for surveillance validation, and (e) implement effective infection control measures in health care settings to avoid secondary cases once the disease has been introduced. Full-compliance with these recommendations will ensure that countries of the Region achieve and maintain the interruption of indigenous measles transmission for as long as necessary until global eradication is achieved.

Lessons learned: First two years of regional rubella surveillance

An analysis of national rubella data

During the last two years, national immunization programs began expanding their measles surveillance systems to include cases suspected of being rubella and, in many instances, began to include all febrile rash illnesses into their systems. The regional measles database (MESS) developed by PAHO for measles eradication, was also expanded to reflect the changes in surveillance activities. Variables were added for important aspects of rubella infection, e.g., pregnancy status, and classification codes were modified to allow a suspected case to be confirmed as rubella. An analysis is presented of the first two years of regional rubella surveillance data that were sent to Washington via weekly transmissions of surveillance data from national MESS databases. For the purposes of this analysis, only laboratory-confirmed cases were included.

During the last two years, 7,696 laboratory-confirmed cases of rubella were reported in the Region from national MESS databases, 5,122 cases were reported in 2000 and 2,574 cases in 2001. During both years, notification peaks for confirmed cases were observed in October (Figure 1). During year 2000, 75% of all laboratory-confirmed cases were reported from four countries. Peru reported 2,126 cases (42% of all cases) for an annual notification rate of 8.3 per 100,000. The Dominican Republic reported 799 cases (16% of all cases) for an annual notification rate of 9.4 per 100,000. Ecuador reported 486 cases (9% of all cases and a notification rate of 3.8 per 100,000) and Bolivia reported 420 cases (8% of all cases) for a rate of 5.0 per 100,000.

It should be noted, that these countries are those that have integrated measles and rubella surveillance. In year 2001, 87% of all confirmed cases were reported from three of these same countries (i.e., Peru with 1,319 cases, Bolivia with 558 cases, and Ecuador with 372 cases). The regional notification rate per 100,000 persons was 1.6 in year 2000 and 0.8 in 2001.

Fifty-four percent of all cases during both years were females and cases in all age groups were reported. The majority of cases during both years of surveillance were 1 to 14 years of age, i.e., 73% in 2000 and 83% in 2001. However, persons 5 to 9 years of age accounted for the greatest proportion of cases in any age group studied, or 39% in 2000 and 47% in 2001. Persons 1 to 4 years of age accounted for 16% of cases in 2000 and 18% of cases in 2001 while persons 20 to 39 years of age accounted for 15% of cases in 2000 and 9% in 2001.

Persons 5 to 9 years of age had the highest notification rate per 100,000 for laboratory-confirmed rubella, i.e., 6.7 in year 2000 and 4.1 in year 2001. Persons 1 to 4 years of age and 10 to 14 years of age had similar notification rates for both years, i.e., approximately 2.6 in 2000 and 1.5 in year 2001.

According to information provided by national MESS databases, 72% of laboratory-confirmed cases in 2000 and 78% of cases in 2001 were not vaccinated. In addition, 26% of cases in 2000 and 19% of cases in 2001 had no information on their vaccination status.

Analysis of the MESS database shows that important numbers of women in child-bearing age (WCBA) in numerous countries had laboratory-confirmed infections with rubella. Unfortunately, information on their pregnancy status was not uniformly collected, or at least was not uniformly reported. In year 2000, of 703 women 15 to 39 years of age with confirmed rubella infections, information on their pregnancy status was not reported for 249 (35%). Thirty-nine (6%) of the 703 women were reported to be pregnant while the remaining 415 (59%) were reported as not being pregnant. Of the 1,394 women in 2001 with rubella infection, 223 were 15 to 39 years of age. Of these 223 women, 19 (9%) did not have information on their pregnancy status, 11 (5%) were reportedly pregnant and 193 (87%) were reportedly not pregnant. Thus, during the two years of study, 268 WCBA had laboratory-confirmed rubella without any information on their pregnancy status. These women were reported from 10 countries in 2000 (Argentina, Bolivia, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua and Peru) and from 5 countries in 2001 (Argentina, Colombia, Ecuador, El Salvador and Guatemala). Thus, 5 countries reported cases of laboratory-confirmed rubella in WCBA with no information on their pregnancy status during both years of study.

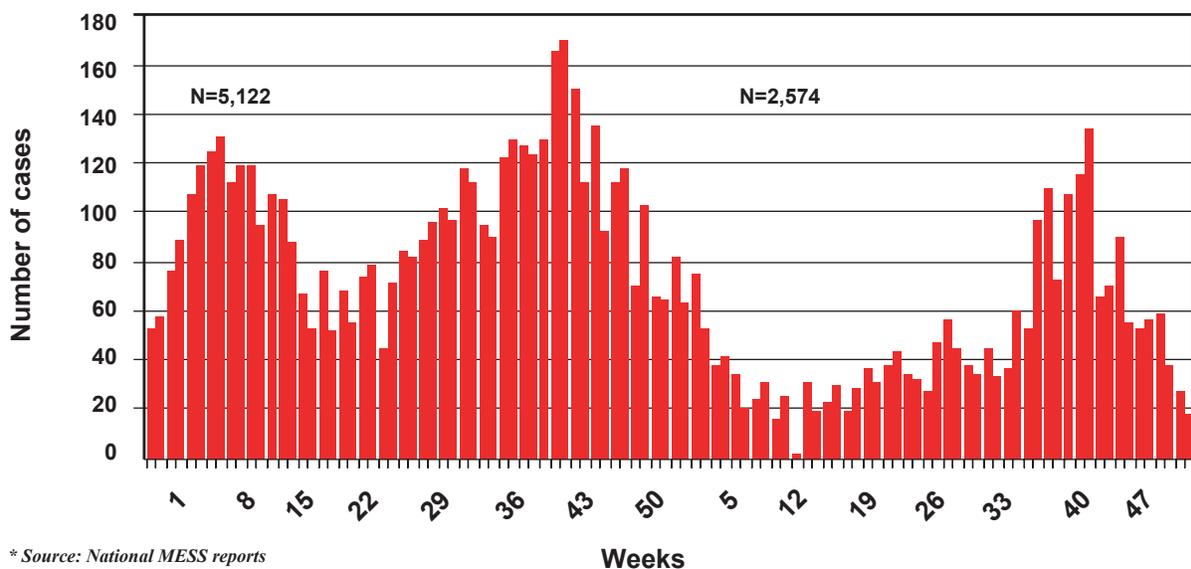
A total of 50 women were reportedly pregnant during a rubella infection. These women were reported from 9 countries (Bolivia –1, CAREC – 2, Colombia - 6, Dominican Republic – 4, Ecuador – 9, Honduras –1, Mexico – 10, Nicaragua – 3, and Peru – 14 women). Of these 50 pregnant women with rubella, 36 (72%) were reported to be 1 to 20 weeks pregnant at the time of infection (Figure 2). Information on the number of weeks that they were pregnant was not available for 6 of the 50 women. The 36 women re-

portedly with rubella during weeks 1 to 20 of their pregnancy were reported from Colombia (3), the Dominican Republic and Honduras (1 each), Ecuador (9), Mexico (8), Peru (10), and Nicaragua and the Caribbean (2 each).

Finally, the number of both laboratory-confirmed cases of rubella and the number of all confirmed cases of rubella (by either laboratory diagnosis or by epidemiologic linkage) was compared to the number of cases reported to PAHO/Washington in the national EPI Tables (EPI Tables indicators developed by PAHO collect data on immunization twice a year). Differences were noted for many countries. In some instances, the EPI Tables had greater numbers of cases reported than those entered in MESS. In other instances, MESS had more cases than those reported by the EPI Tables.

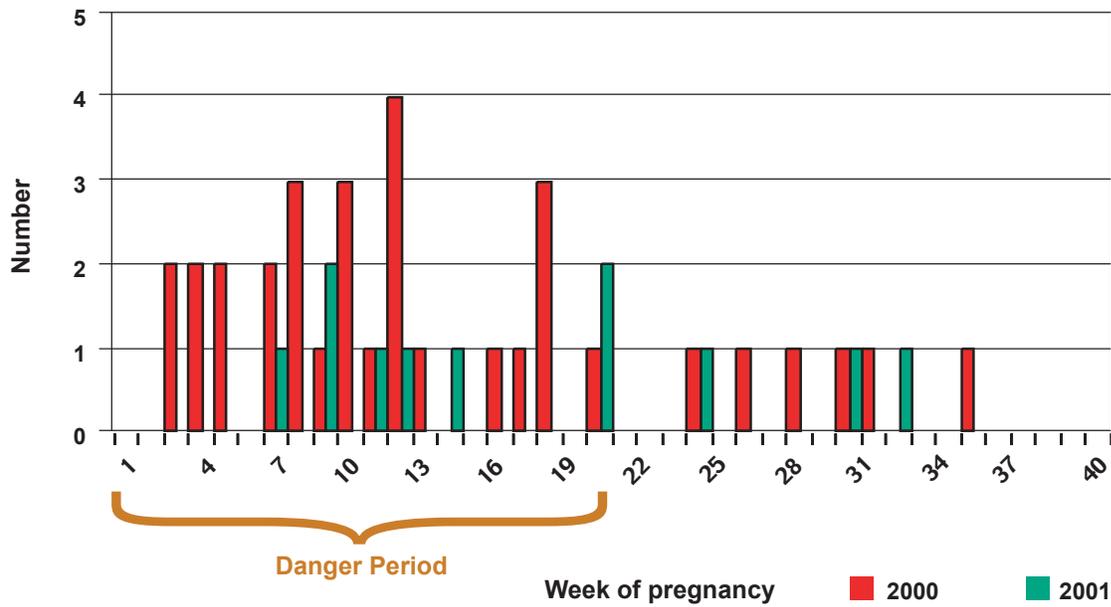
Editorial Note: This analysis looked only at rubella information sent to PAHO/WDC via the weekly transmission of national MESS databases. Data from countries that send PAHO only aggregate numbers of cases by means other than MESS were not included in this analysis (e.g., Brazil). In interpreting this data one should keep in mind that countries began including rubella in MESS at different points in time. In fact, in some countries, cases notified as "suspected cases" may actually be suspected of only measles, i.e., their initial diagnosis is always measles. Furthermore, it is possible that as countries expand surveillance, only a sample and not all rubella cases are entered into MESS. Thus, rather than consider these data as final summary data for the Region, they should be viewed as start-up data for baseline comparisons. However, even with these limitations, important lessons can be learned, particularly about the management and case investigation of rubella cases in the Region.

Figure 1. Distribution of laboratory - confirmed rubella cases by week of onset, The Americas, 2000-2001*



* Source: National MESS reports

Figure 2. Rubella infection in pregnant women by week of pregnancy, The Americas, 2000-2001**



* There is no information for 6 (12%) of 50 pregnant women in 2000
 36 of the 50 were 1-20 wks pregnant
 ** Source: National MESS reports

First, in the Americas, rubella is common, affects both genders and all ages and is widespread. This confirms what was known or what has been suspected for many years. Although infections occur in all age groups, the age most affected include individuals 5 to 9 years of age. Persons 10 to 14 years of age were found to contribute as many cases as persons 1 to 4 years of age. This should be taken into consideration when managers plan follow-up vaccination campaigns with MR or MMR. Activities aimed at decreasing viral circulation to reduce the risk of the occurrence of cases of congenital rubella syndrome (CRS) should consider expanding the age group to be vaccinated beyond 4 years of age.

An important finding of these analyses is that not all women of child-bearing age with rubella infection have information on their pregnancy status. This alarming finding (which represents a programmatic error that appears to be occurring in various countries) needs correction. The fact that the proportion with unknown pregnancy status has decreased from 35% in 2000 to 9% in year 2001 suggests that case investigations are improving. Even so, managers must keep in mind that the goal of vaccination against rubella is to prevent CRS and not necessarily rubella infections. The presence of a single WCBA with rubella who is not adequately investigated represents a significant failure of the program. It should be remembered that not only must all

countries accelerate the integration of measles and rubella surveillance, but all women with rubella must be followed closely by health care workers.

It could be argued that women without information on their pregnancy status represent women who were initially diagnosed as measles or with another non-rubella diagnosis and were later confirmed to be rubella. Nevertheless, once diagnosed as rubella, a follow-up investigation needs to be conducted to determine their pregnancy status. If found to be pregnant, these women deserve even more thorough follow up to determine if they eventually give birth to a child with CRS. The data presented here suggest that numerous cases of CRS, from various countries, may have occurred during the two year period studied. Data from MESS do not shed light onto whether infants born to mothers with rubella infection during their pregnancy were adequately followed and investigated.

Finally, when comparing MESS data to the national information sent to PAHO in the EPI Tables, many discrepancies exist. National authorities should ensure that all cases of rubella notified in national surveillance systems are also reported to the national immunization offices and that such cases are investigated. All cases must also be entered as suspected cases in national MESS data bases.

Immunization programs of the southern cone and Brazil reviewed

On the 29th and 30th of August of 2002, the 16th Regional Meeting for Vaccine Preventable Diseases for the countries of the Southern Cone and Brazil was held in Buenos Aires, Argentina. Managers of National Immunization Programs (NIPs) from six countries met and discussed advances, problems and future plans for their countries. Present during the meeting were delegations from Argentina, Chile, Paraguay, Uruguay, Brazil and Bolivia, as well as staff from the Division of Vaccines and Immunization in Washington, D.C. and a representative from UNICEF's program in the Americas. In addition, 24 provincial chiefs of NIPs in Argentina participated.

The objective of the meeting was to critically analyze the current epidemiological situation in each country for the eradication and/or control of measles, rubella, and polio, as well as neonatal tetanus. Furthermore, detailed discussions were held on vaccine safety, calculations of national coverage levels, development of National Plans of Action, and the current status of the diphtheria outbreak in Paraguay. As in previous meetings, national directors of each measles/rubella diagnostic laboratory participated and held a concurrent laboratory meeting.

Countries reported advances in their programs with the majority reaching national coverage levels for DPT3, OPV3 and measles vaccine of at least 90% with the exception of Argentina where coverage is between 85% and 90%. Only Brazil reported a confirmed measles case in 2001/2002 and this sole case was an importation from Japan. Three countries (i.e., Argentina, Brazil and Bolivia) reported confirmed measles cases in 2000.

The countries present confirmed 733 rubella cases in 2002 and all reported the incorporation of rubella vaccines into the national programs. Paraguay is in the process of initiating rubella control strategies and recently adding measles/mumps/rubella to their routine immunization schedule. Argentina is also initiating a plan for rubella control activities. Chile and Brazil have implemented large-scale accelerated rubella control activities.

For polio, only Bolivia, Chile and Uruguay reported AFP rates of >1.0 per 100,000 persons under 15 years of age. Paraguay, where coverage with DTP3 has been approximately 80% during the last decade, reported 41 confirmed diphtheria cases in 2002 (see *EPI Newsletter*, June 2002).

Measles Surveillance Indicators – 2002

Indicators	ARG	BOL	BRA	CHI	PAR	URU
% of units that report weekly	99	0	89	90	84	57
% of suspected cases investigated <48 hours	70	100	60	67	81	100
% of cases with an adequate sample	96	97	63	90	100	100
% of cases with a sample that arrives in lab < 5 days	76	78	53	76	57	100
% of samples with results < 4 days	76	83	81	94	100	100

nation strategies for measles eradication, especially rapid monitoring of coverage at the local level.

- Vaccinate adults in high-risk groups such as health care workers.

Acute Flaccid Paralysis Surveillance Indicators 2001-2002*

Indicators	ARG	BOL	BRA	CHI	PAR	URU
% of units that report weekly	99	0	91	90	86	55
% of cases investigated <48 hours	97	95	98	90	67	100
% of cases with an adequate stool sample	66	74	74	77	62	100
AFP rate in persons < 15 years	0.99	1.27	0.72	1.3	0.90	1.38

* Last 52 weeks (35/2001 to 34/2002)

- Each country should identify municipalities with coverage <95% and develop local Plans of Action to improve local coverage.
- Accelerate the integration of rubella surveillance with that of measles and implement surveillance for congenital rubella syndrome.

- A rubella-containing vaccine should be used in all measles campaigns. The use of single antigen measles vaccine represents a missed opportunity for rubella.
- Maintain and strengthen, as needed, surveillance for AFP and ensure high coverage with OPV.
- Each country should create a National Committee for the Containment of Wild Poliovirus.
- Each country reporting cases of neonatal tetanus should develop Plans of Action to confront the problem.
- Vaccine safety must become a priority in each country
- Each national program should develop and distribute material on vaccine safety and include activities for vaccine safety in national Plans of Action.
- Countries should maintain, or revitalize as indicated, Interagency Coordination Committees (ICC), to improve the coordination between agencies, and to take advantage of the each agency's experiences and expertise.

Reported Cases of Selected Diseases

Number of reported cases of measles, poliomyelitis, tetanus, diphtheria and whooping cough, from 1 January 2002, to date of last report, and the same epidemiological period in 2001, by country

Region	Country/Territory	Date of Last Report	Measles				Polio		Tetanus				Diphtheria		Whooping Cough	
			Confirmed 2002			Confir- med 2001*	2002	2001	Non Neonatal		Neonatal		2002	2001	2002	2001
			Laboratory	Clinically	Total				2002	2001	2002	2001				
AND	Bolivia	29-Jun	0	0	0	0	0	0	17	12	1	3	4	2	48	27
AND	Colombia	29-Jun	72	4	76***	1	0	0	...	...	...	...	...	0	...	...
AND	Ecuador	29-Jun	0	0	0	2	0	0	0	1	6	5	2	1	237	211
AND	Peru	29-Jun	0	0	0	0	0	0	3	19	0	5	0	0	0	4
AND	Venezuela	29-Jun	2306	0	2306	8	0	0	1	1	0	0	0	0	5	4
BRA	Brazil	29-Jun	0	0	0	1***	0	0	...	129	...	17	...	10	...	657
CAP	Costa Rica	29-Jun	0	0	0	0	0	0	...	...	...	0	...	0	...	...
CAP	El Salvador	29-Jun	0	0	0	2***	0	0	...	...	...	...	...	0	...	...
CAP	Guatemala	29-Jun	0	0	0	0	0	0	3	7	2	5	0	0	26	154
CAP	Honduras	29-Jun	0	0	0	0	0	0	...	...	...	0	...	0	...	...
CAP	Nicaragua	29-Jun	0	0	0	0	0	0	2	9	1	1	0	0	46	35
CAP	Panama	29-Jun	0	0	0	0	0	0	2	1	0	1	0	0	49	0
CAR	Anguilla	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	Antigua & Barbuda	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	Bahamas	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	Barbados	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	Belize	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	Bermuda	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	British Virgin Islands	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	Cayman Islands	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	Dominica	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	French Guiana	29-Jun	0	0	0	0	0	0	...	...	...	...	...	...	...	...
CAR	Grenada	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	Guadeloupe	29-Jun	0	0	0	0	0	0	...	...	...	...	...	...	...	...
CAR	Guyana	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	2	0
CAR	Jamaica	29-Jun	0	0	0	0	0	0	1	2	0	0	0	0	1	0
CAR	Martinique	29-Jun	0	0	0	0	0	0	...	...	...	...	...	...	...	...
CAR	Montserrat	29-Jun	0	0	0	0	0	0	...	...	...	...	...	...	...	...
CAR	Netherlands Antilles	29-Jun	0	0	0	0	0	0	...	...	...	...	...	...	...	...
CAR	St Vincent/Grenadines	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	St. Kitts/Nevis	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	St. Lucia	29-Jun	0	0	0	0	0	0	0	1	0	0	0	0	0	0
CAR	Suriname	29-Jun	0	0	0	0	0	0	0	1	3	0	0	0	0	1
CAR	Trinidad & Tobago	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAR	Turks & Caicos	29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAC	Cuba	29-Jun	0	0	0	0	0	0	0	1	0	0	0	0	0	0
LAC	Dominican Republic	29-Jun	0	0	0	113	0	0	28	14	0	0	8	28	3	18
LAC	Haiti	29-Jun	0	0	0	102	0	0	...	...	32	33	6	4	15	14
MEX	Mexico	29-Jun	0	0	0	3***	0	0	...	...	...	...	...	0	...	...
NOA	Canada	29-Jun	5	0	5***	24***	0	0	...	3	...	0	...	1	...	1056
NOA	Puerto Rico	29-Jun	9	0	9***	0	0	0	...	...	...	...	...	...	...	...
NOA	United States	29-Jun	0	0	0	79***	0	0	6	22	...	...	0	1	2,884	2506
SOC	Argentina	29-Jun	0	0	0	0	0	0	...	5	...	0	...	0	...	73
SOC	Chile	29-Jun	0	0	0	0	0	0	...	5	...	0	...	0	...	709
SOC	Paraguay	29-Jun	0	0	0	0	0	0	7	11	4	6	28	0	10	21
SOC	Uruguay	29-Jun	0	0	0	0	0	0	...	1	...	0	...	0	...	6
	TOTAL		2,392	4	2396	335	0	0	70	245	49	76	48	47	3,326	5,496

... Data not available

___ Clinically confirmed cases are not reported

* Laboratory and clinically confirmed cases

** Type 1 vaccine derived poliovirus

*** Due to importation

na - not applicable

Updated 18 September 2002

Immunization goals in the global sustainable development and poverty reduction agenda

During the 2000-Millennium Summit, states of the United Nations reaffirmed their commitment to sustainable development and poverty reduction by developing eight measurable goals and targets. Goal number 4 addressing child mortality reduction by two thirds between 1990 and 2015, has three indicators one of which is the proportion of one-year olds immunized against measles. The Department of the Treasury of the United States announced July 25, 2002, during a testimony before the Subcommittee on International Monetary Policy and Trade of the House Committee on Financial Services, that it would assess international aid effectiveness by means of progress being made in school completion, measles immunization rates, and business start-up expenses. The goal on health seeks an increase in measles immunization coverage across countries that are eligible for assistance through the International Development Association (IDA), as well as increase in the number of countries with 80% vaccination coverage (<http://www.who.int/mdg/goals/en> and <http://www.ustreas.gov/press/releases/p03288.htm>).

The consensus of the key role played by immunization offers a unique opportunity to maintain and expand the reach of immunization programs in the Americas, and as such for immunization to remain a critical component of child survival initiatives. It requires, however, the maintenance and/or strengthening of the institutions that have supported the delivery of effective immunization and surveillance programs, as well as the effective stewardship of national health authorities to ensure optimum performance of immunization programs at all levels of a country's health system.

In the context of the critical role now played by health to

reach poverty reduction and sustainable growth goals, equity in immunization has become an overriding theme for PAHO's technical cooperation program in this area. Equity is defined as attaining uniform quality immunization coverage in all municipalities of the countries, as well as providing an enabling political and technical environment for the Americas to benefit from additional new or under-used vaccines of public health importance. As such, PAHO's goal is to support countries in translating the concept of equity into doable and measurable interventions that will effectively reduce disparities in a changed political environment, and ensure that children and women of child bearing age are protected against other diseases prevented by quality vaccination.

Millennium Development Goals

- Goal 1** Eradicate extreme poverty and hunger.
- Goal 2** Achieve universal primary education.
- Goal 3** Promote gender equality and empower women.
- Goal 4** Reduce child mortality.
- Goal 5** Improve maternal health.
- Goal 6** Combat HIV/AIDS, malaria, and other diseases.
- Goal 7** Ensure environmental sustainability.
- Goal 8** Develop a global partnership for development.

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