EPI Newsletter

Expanded Program on Immunization in the Americas

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Immunization and Private Sector Participation

Central American countries held their first formal meeting August 19-20 in Honduras, to promote and strengthen the participation of the private medical sector in immunization and surveillance programs for vaccine-preventable diseases. Participants from Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama, included directors of immunization programs, members of Pediatric Societies, neurologists who participated in the regional polio eradication campaign, as well as PAHO national and regional staff.

Purpose of the meeting:

- Analyze the experiences of countries in Central America that have incorporated the private medical sector into immunization and surveillance activities for vaccine-preventable diseases.
- Review regional and global goals for vaccine-preventable diseases, cold chain requirements, as well as relevant issues for the introduction of new vaccines into routine immunization schedules.
- Sign agreements that will facilitate the insertion of the private medical sector into immunization and surveillance activities in Central America.

Country Experiences

The following outlines country experiences in incorporating the private medical sector into national immunization activities.

Honduras

The incorporation of the private sector began in 1987, during the polio eradication campaign. Starting in 1992, fifteen private pediatricians from the metropolitan area joined national vaccination activities. This effort was later expanded to three other health areas in the country. In 1998, a public/private project was initiated in the metropolitan area that includes the provision of biologicals, participation of general practitioners, and their incorporation into surveillance activities. Currently, 88% of private pediatricians and 80% of the physicians at clinics and private hospitals in the country's metropolitan area are integrated into this project. In 1997, the private sector's contribution towards vaccination coverage in the metropolitan region was approximately 1.6%. Honduras has also established a joint National Advisory Council for its national immunization programs.

Nicaragua

Since 1987, there has been a precedent of private sector participation in national immunization programs. These activities have included surveillance for acute flaccid paralysis (AFP) and the current effort to detect importations of wild poliovirus. In 1994, with the support of the Society of Pediatrics, physicians from the private sector were initially incorporated into the national surveillance system for fever and rash illnesses and later in measles surveillance. This occurred first in the capital city of Managua, and then in five SILAIS (local health systems). To date 75 private sector clinics have participated in national immunization activities; these clinics serve 49% of the population in the country. Weekly negative reporting of AFP at these clinics has been higher than 90% and the detection and reporting of suspected measles cases is approximately 4%. The private sector contributes approximately 5% to the national vaccination coverage. Its participation has been especially noteworthy in the establishment of a National Committee on Immunization Practices, dissemination of information on immunization, by interfacing with the mass media, and sponsorship of academic and research activities.

Panama

Private sector participation is ongoing in 10 of the 13 health regions of the country, primarily in vaccination

In this issue:

activities. The private sector contributes 15% towards national vaccination coverage in children under 1 year of age. A recent study shows that 9 of the 13 health regions are collaborating in the delivery of vaccines from the public sector to 102 pediatricians in 40 clinics, and in the exchange of information on population vaccinated.

Belize

The country has had informal collaboration with the private sector in different areas of the EPI since 1978. These have included surveillance, the EPI Technical Commission, vaccination, and the introduction of hepatitis B vaccine. This participation contributed significantly to the certification of the eradication of poliomyelitis and to the progress being made towards measles eradication. Although the participation of the private sector and its contribution towards national immunization coverage has been increasing, the Ministry of Health still ensures all vaccination coverage in the country.

Guatemala

There is no documented formal private sector participation, but there is evidence of collaboration in the country's process of poliomyelitis eradication and certification. The country's Pediatric Association collaborates with the Advisory Commission of the National Program for Immunization in reviewing the immunization schedule.

El Salvador

Although there is no documented collaboration between the two sectors, the private sector participated actively in the process of polio eradication and certification. Approximately 5 to 10% of the population are served by the private sector, contributing significantly towards national vaccination coverage.

Costa Rica

Costa Rica's Social Security Fund ensures the financing of vaccines included in the national immunization schedule, and it is gradually becoming responsible for all aspects of the Program. The Ministry of Health currently plays a regulatory role.

The participation of the private sector in the implementation of immunization programs is limited to approximately 1–2% of vaccines administered. For the most part, these are pediatricians who act as volunteers, receive the vaccines free, and as a result apply them without charge to their patients. In epidemiological surveillance, there is some participation in the reporting of vaccine-preventable diseases. The Pediatric Association has participated in the National Commission on Immunization since 1994, and in 1997, the Association established a Committee on Vaccination, which now advises the Ministry of Health by decree.

Agreements on Future Collaboration

The Ministries of Health and the Societies/Associations of Pediatrics of participating countries established specific objectives, aimed at developing and/or strengthening the participation of the private medical sector in immunization.

Epidemiological Surveillance

Ministries of Health will prepare a simplified surveillance guide for vaccine- preventable diseases, and will establish a formal notification system in collaboration with the private sector. Physicians, in turn, will carry out weekly negative reporting and promptly notify public health authorities in the event of a suspected case of a vaccine-preventable disease. Cases will be well-documented, especially AFP and suspected measles cases. Samples will be properly collected and shipped for analysis to national reference laboratories, according to the national standards.

Ministries of Health will communicate laboratory results of cases to private sector physicians and provide them with periodic reports on the national epidemiological situation of vaccine-preventable diseases. The Ministry's efforts will also include developing a surveillance system for adverse reactions to vaccination, as well as establishing the necessary mechanisms for this system's reporting and laboratory investigation within the private sector.

Basic Vaccination Schedule

The private medical sector through the Pediatric Societies will coordinate with the National Immunization Programs to adopt a basic immunization schedule for the country. Pediatric Societies commit themselves to promoting the use of a universal vaccination card. National programs will provide simplified and standardized forms to private physicians to register the number of administered doses by vaccine.

Quality Vaccines

Vaccines and other inputs utilized by both the public and private sectors should follow the norms established by the National Authority of Quality Control of Biologicals and certified by PAHO/WHO.

Cold Chain

Given that the cold chain is a fundamental component that guarantees the quality of vaccines used in immunization programs, the Ministries of Health should prepare a simplified guide on cold chain requirements, and provide technical assistance and required monitoring to safeguard their quality. The private sector should comply with these norms and have the required refrigeration equipment.

National Committees on Immunization Practices

Pediatric Societies and National Immunization Programs commit themselves to promoting and participating with national authorities and the EPI in a joint advisory group. The objectives of this group will be to support the quality, acceptance of, and the trust in the EPI; favor the joint participation of the public and private sectors; and serve as a forum to debate and prepare national recommendations on different aspects of the Program.

Annual Work Plans

Pediatric Societies and National Immunization Programs will prepare annual work plans that incorporate the private sector into immunization activities, identify respon-

sibilities for each sector and, determine deadlines for the implementation of agreed upon activities.

Information, Education and Promotion

Pediatric Societies will promote and sponsor the development of academic and scientific activities for the different aspects of the EPI at their various meetings, such as congresses, courses, national and regional scientific meetings, with the support of the Ministries of Health and PAHO.

National Immunization Programs and PAHO will facilitate the establishment and implementation of a communications network to disseminate technical information on aspects of immunization.

Technical Cooperation

PAHO's Special Program for Vaccines and Immunization (SVI) and Country Offices in each of the participating countries will provide technical cooperation in support of the implementation, management and sustainability of private sector integration into National Immunization Programs.

Monitoring

Participants agreed that within one year, a follow-up meeting will be held to evaluate the progress achieved on the issues cited above.

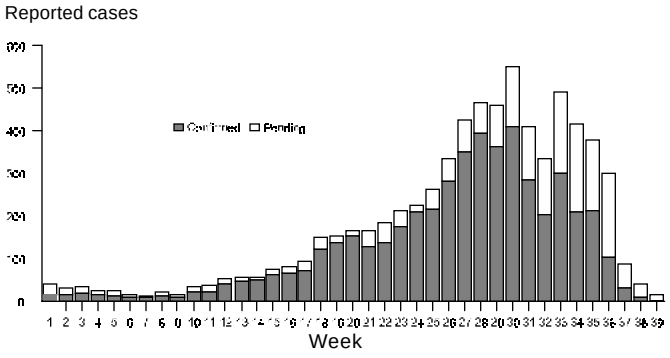
Measles Update

Argentina

As of 9 October 1998, Argentina had reported 6,257 confirmed measles cases. Of the total cases reported, 5,588 (89.3%) occurred in the greater Buenos Aires metropolitan area with 4,175 (66.7%) occuring in infants and children < 5 years of age. While precise figures are not yet available, most cases of measles in children between 1-4 years of age have been among the unvaccinated. To date, 30 measles-related deaths have been reported; mostly in infants and children < 2 years of age.

Among the cases reported from greater Buenos Aires, the highest age-specific incidence rates occurred among infants < 1 year of age (906 cases/ 100,000 population), followed by children 1-4 years of age (194 cases/100,000), children and adolescents 5-19 years of age (29 cases/100,000), and persons 20 years of age or older (13 cases/100,000).

Reported measles cases by week of report and classification, Argentina, 1998



Source: Ministry of Health, Department of Immunization, Argentina. Data as of 9 October 1998.

Outbreak control measures included lowering the age of measles vaccination in affected areas to 6 months of age, vaccinating susceptible contacts of suspected measles cases, and completing the measles *follow-up* campaign. The campaign was started in May 1998, and is targeting children 2- 5 years of age.

Editorial Note: Argentine health authorities are continuing their outbreak investigation. Preliminary information indicates that although the reported routine infant measles vaccination coverage has been over 95% since the *catch-up* campaign in 1993, the large number of cases occurring in unvaccinated preschool-aged children strongly suggests that there were large pockets of children who were not reached for measles vaccination.

The source of the outbreak has not been definitely determined, but it is suspected that measles virus may have been imported from the large measles outbreak in southern Brazil in late 1997. Genetic analyses of measles virus isolates obtained from the Argentina outbreak will be conducted at the Centers for Disease Control and Prevention in Atlanta, Georgia, USA. Information from these analyses should provide useful information concerning the potential geographic source of measles virus responsible for the current outbreak.

Similar to the large outbreak that occurred last year in Sao Paulo, Brazil, this outbreak again demonstrates the extreme infectivity of measles virus and the importance of achieving and maintaining high levels of routine measles vaccination coverage and of conducting timely *follow-up* campaigns with high coverage. Moreover, these outbreaks again demonstrate that large cities with high population density are areas at high risk for measles importations and outbreaks. Increased efforts are needed to assure high measles immunity in infants and preschool-aged children, especially those living in urban environments.

Haiti

Haiti is currently conducting a *follow-up* measles vaccination campaign targeting approximately 1.2 million children between the ages of 1-5 years. The campaign started

early July in a southern province. On September 20, the first of two campaigns was conducted in the metropolitan area of Port-au-Prince. In spite of the passage of Hurricane Georges in late September, vaccination activities were only delayed by a couple of weeks, and the second part of the campaign was carried out between October 11 and 18. By the end of October, all urban areas will have been vaccinated. The campaign will also include immunization against polio, DTP, and the delivery of vitamin A supplements. Vaccination against tetanus toxoid is also offered to women of childbearing age.

The last case of confirmed measles in Haiti occurred in 1994, the year a *catch-up* campaign was conducted. Since then, there has been a rapid accumulation of susceptibles to measles due to low routine vaccination coverage. The Ministry of Health has developed a dual strategy that aims at covering susceptible populations with the current campaign, and increasing routine vaccination coverage. Among the campaign's partners and donors are USAID, the Government of Japan, and UNICEF. PAHO/SVI has provided technical assistance towards this effort.

Paraguay

The national campaign was inaugurated October 15, by the President of Paraguay, Mr. Rául Cubas Grau, the First Lady, Mrs. Mirta Gusinky de Cubas, the Health Minister, Dr. Carmen Frutos de Almada, and other government and health officials. The Ministry of Health and Education signed an agreement to promote and disseminate information on the campaign at schools throughout the entire country.

Paraguay is conducting a country-wide *follow-up* measles vaccination campaign October 19 through November 30th, aimed children between ages of 6 months to 14 years. The campaign will begin in densely populated urban areas and will then spread to other regions. Total population to be vaccinated is 2,137,274 children, which represents 40% of the population (50% of the target population lives in urban areas). The first phase the campaign will focus on preschool and school-aged children, orphanages, juvenile detention centers, and commercial centers. Between November 1-30, the Ministry has planned door to door *mop-up* vaccination in all areas that failed to reach 100% vaccination coverage during the initial phase of the campaign.

No Scientific Justification to Suspend Hepatitis B Immunization

On 1 October 1998, the French Ministry of Health announced a decision to suspend routine hepatitis B (HB) immunization of adolescents in French schools, while continuing the immunization of infants and high risk adults. This decision followed concerns, despite lack of scientific evidence establishing a causal relationship, that hepatitis B immunization might be linked to the development or flare-up of demyelinating diseases such as multiple sclerosis (MS), and comes in the wake of enormous pressure from anti-vaccine groups.

The World Health Organization (WHO), with the assistance of external experts in neurology, epidemiology, immunology and public health, has carefully reviewed the scientific evidence on whether hepatitis B vaccine can cause demyelinating diseases such as MS. WHO believes that available scientific data does not demonstrate a causal association between HB immunization and central nervous system diseases, including MS.

Over 1 billion doses of hepatitis B vaccine have been used since 1981 with an outstanding record of safety and efficacy, and the vaccine is 95% effective in preventing the development of the chronic carrier state of hepatitis B. HB vaccine is the first vaccine against a major human cancer, as it is the chronic carriers of hepatitis B who are at a high risk of death from cirrhosis of the liver and liver cancer.

Recognizing the enormous value of hepatitis B vaccine, the World Health Assembly recommended in 1992 that all countries incorporate hepatitis B vaccine into their routine immunization programs. To date, 100 countries have added hepatitis B vaccine into their national immunization programs, and many industrial countries have begun programs of immunizing adolescents as well.

Although France will continue infant and high risk adult immunization, WHO is concerned that the decision taken October 1, may lead to loss of public confidence in this vaccine, and decisions by other countries to suspend or delay introduction of HB vaccine. There are over 350 million chronic carriers of hepatitis B at high-risk from cirrhosis of the liver and liver cancer. Stopping immunization could see these numbers increase.

There have been previous experiences with other vaccines, such as diphtheria, tetanus, pertussis (DTP) vaccine, where unsubstantiated hypotheses and anti-vaccine information lead to loss of public confidence and reduced coverage. Millions of cases of pertussis and hundreds of deaths followed reduced use of DTP in several countries.

WHO strongly recommends that all countries already using hepatitis B vaccine as a routine vaccine in their national immunization programs continue to do so, and that countries not yet using the vaccine begin as soon as possible.

Source: WHO press release 2 October 1998, WHO/67.

Rubella Vaccine and Vaccination Strategies

One of the consequences of the devastating rubella pandemic in Western Europe and the United States in 1964-1965 was extended research and progress towards the development of an effective vaccine. Following isolation of the rubella virus in 1962 by Parkman, Beuscher, and Arenstein in Washington D.C., and Weller and Neva in Boston, three rubella vaccine strains were initially licensed in the United States in 1969. These were soon replaced by the vaccine now used throughout the world; the RA 27/3 rubella vaccine. This vaccine was developed by Dr. Stanley A. Plotkin between 1965 and 1967 at the Wistar Institute in the United States. The RA 27/3 vaccine was licensed in the United States in January 1979.

The vaccine is a weakened live rubella virus and produces immunity by mimicking natural rubella infection. It is attenuated by 25-30 passages in tissue culture. The resulting viremia and pharyngeal excretion, however, are of a much lower magnitude than natural infection, and are noncommunicable. Rubella vaccination induces IgM and IgG antibody responses. The long-term presence of IgG antibody eliminates the possibility of viremia following subsequent exposure to circulating rubella virus. By generating secretory IgA responses to block replication in the nasopharyngeal mucosa, vaccination protects the body against re-infection.

The rubella vaccine is very safe. It is generally noncommunicable. However, a mother may transmit the vaccine virus to her infant via breastfeeding. Infection in the infant, however, remains subclinical. Adverse reactions to the vaccine are rarely severe and are generally self-limiting. RA 27/3 is administered mostly in a combination with measles and mumps vaccines (MMR). The most common adverse reactions of the rubella component of vaccination are joint symptoms. Arthrlagia may occur in approximately 25% of susceptible women. Moreover, approximately 10% of susceptible women may have acute arthritis-like symptoms.

Due to its safety, as well as consistent immunogenicity, the RA 27/3 vaccine strain is preferred over previously licensed rubella vaccines. Seroconversion occurs in over 95% of those vaccinated. The vaccine induces higher antibody titers and produces an immune response that more closely resembles natural infection. It is highly effective, with immunity thought to be lifelong

The preferred form of rubella vaccine administration is through the MMR or MR (measles and rubella) vaccination. Children should receive MMR vaccine at 12-15 months of age. In addition, MMR vaccine may be used for the measles *follow-up* campaign. Indications for vaccine use in adults include: international travelers, persons in post-high school educational institutions, health care workers, and women of childbearing age who lack acceptable evidence of immunity.

The main contraindication to rubella vaccination is pregnancy. Although there is no evidence to suggest that rubella vaccination causes Congenital Rubella Syndrome (CRS), it is prudent to avoid rubella vaccination, as well as other live virus vaccines, during pregnancy. Another contraindication is persons with impaired immunity. Therefore, persons infected with HIV and exhibiting signs of severe immunosuppression should not be vaccinated. Other contraindications include moderate to severe febrile illnesses and persons who have recently received injections of immune globulins.

Rubella Control Strategies

In the past 30 years, two major rubella control strategies have been implemented; however, both vaccination strategies have been only been moderately successful. In the United Kingdom, a national rubella immunization program was implemented in 1970. The initial target population of this strategy was prepubescent girls 11-14 years of age. The objective was to attain high levels of rubella immunity among women. In 1976, the strategy was expanded to vaccinate all susceptible women of childbearing age. This strategy proved partially successful. While the number of CRS cases dropped significantly there were still quite a few persons who remained susceptible and the virus continued to circulate.

The strategy initially adopted in the United States in 1969 was to target the primary transmission group--young school children of both sexes. This strategy assumed that decreased rubella virus transmission among children would protect susceptible women of childbearing age. Routine vaccination of all children aged 12-15 months was later implemented. Studies showed, however, that although a decline in rubella transmission in children had occurred, the number of susceptible childbearing aged women had remained relatively unchanged.

Recently in the United States, outbreaks of rubella have occurred in South Carolina, New York, California, and Texas. Young adults of Hispanic ethnicity have accounted for the majority of the cases in recent-year outbreaks. In fact, over 80% of the rubella cases reported to the Centers for Disease Control and Prevention (CDC) during 1997 occurred in persons of Hispanic ethnicity. These data suggest that rubella virus is being imported to the United States from Latin America.

Rubella vaccination has only been recently introduced into Latin America. While rubella incidence has greatly decreased in the United States, rubella remains endemic in the countries of Latin America and the Caribbean. Thus, persons born in countries without rubella vaccination programs are at an increased risk.

Although a goal to eliminate rubella and CRS in the Americas has yet to be established, there are steps to be taken to improve rubella control and decrease CRS incidence. From the above, it is apparent that much work is needed to control and eventually eliminate rubella. A vaccination strategy combining the strategies used by the United Kingdom and the United States would likely be successful in interrupting rubella virus circulation. The vaccination program would integrate individual protection for women of childbearing age, with the vaccination of all children to

interrupt transmission.

At the Technical Advisory Group (TAG) Meeting on Vaccine-Preventable Diseases in 1997, the following recommendations for the countries of the Americas were made:

- Rubella vaccine (as MR or MMR) should be incorporated into routine childhood vaccination programs of all countries in the Region.
- CRS surveillance should be established before or concurrent with rubella vaccination program implementation.
- Because each country is in a different situation and moving at a different pace towards improved rubella and CRS control, there are recommendations that apply to certain countries:
- Countries wishing to prevent and control CRS promptly should carry out a mass campaign to vaccinate all females ages 5-39.
- Countries wishing to prevent and control both rubella and CRS promptly should carry out a mass campaign to vaccinate persons of both sexes ages 5-39.
- Countries that are unable to do either of the above, in addition to routine infant vaccination, should target women of childbearing age for rubella vaccination.

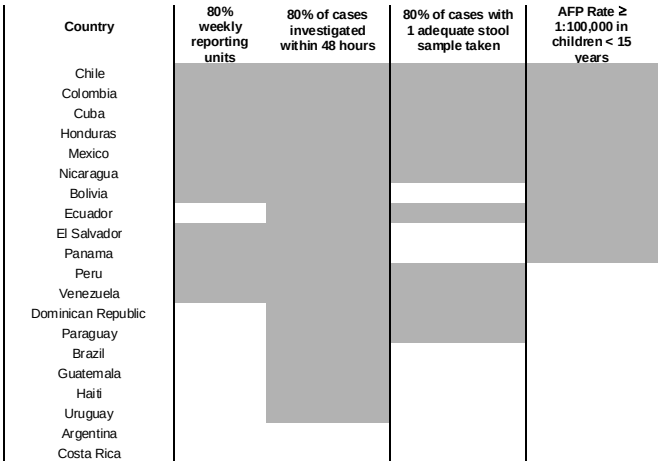
Polio Surveillance

Seven years following the last case of poliomyelitis in the Americas and four years after the certification of eradication of wild poliovirus transmission in the Americas, the rate of acute flaccid paralysis (AFP) continues to decline (0.70 of AFP cases per 100,000 in children under 15 years of age). The projected year end goal is to reach the rate of 1 case of AFP per 100,000 in children under 15 years of age. Based on this, a calculation was done of the AFP cases needed to be reported by countries. Table 1 below shows countries, that at week 40 had failed to report cases of AFP expected to occur during this period.

Table 1

Country	Cases reported 1997	Cases reported up to week 40/1998	Cases expected to be reported up to week 40/1998
Argentina	49	0	141
Brazil	430	195	637
CAREC	14	10	26
Costa Rica	11	0	14
Dominican Republic	22	11	31
Haiti	0	2	26
Paraguay	10	7	21

Table 2
AFP Surveillance Indicators



* Data as of week 40, ending 10 October 1998
Source: SVI/PAHO (PESS).

Regional Notes

VII Meeting of Wives of Heads of State and Government, 28-29 September, Chile: The First Ladies of the Americas included the following statement in their final Declaration: "We reiterate the need to guarantee the continuity in the efforts towards eradicating measles in our Hemisphere by the year 2000. Moreover, we support other initiatives that implement innovative strategies to promote mental and physical health."

Yellow Fever: As of 20 October 1998, a provisional total of 254 cases of yellow fever and 103 deaths have been reported in countries endemic for the disease: Bolivia (52 cases and 35 deaths), Brazil (32 cases and 14 deaths), Ecuador (3 cases and 1 death), French Guyana (1 case and 1 death), Peru (153 cases and 48 deaths), and Venezuela (14 cases and 3 deaths.)

In Brazil, the two states most affected are Pará and Roraima. In Pará, (population of 3.1 million), mass vaccination against yellow fever is underway. In the State of Roraima, the threat of urbanization of yellow fever led national and local authorities to immediately start vaccinating the State's entire population (260,000 inhabitants). Since 1996, Brazil has included vaccination against yellow fever in children's routine immunization programs in endemic areas. In 1999, the Ministry of Health plans to immunize 110 million people living in enzootic areas and contiguous regions infested by *Ae. aegypti.*

Another outbreak in the Amazon region of Venezuela, along the eastern border with Brazil is under investigation.

PAHO is collaborating with countries in the Region where yellow fever is endemic, to implement a strategy that prevents the re-urbanization of the disease. The strategy, presented at the 8th Meeting of EPI Managers of the Andean Region (May 1998), and at the meeting of experts on Yellow Fever Prevention and Control Strategies-Risk of Urbanization in the Americas (May 1998), recommends that countries: 1) achieve as soon as possible vaccination of the entire population against yellow fever, at least in endemic areas; 2) incorporate the vaccine in the basic immunization schedule for children under 1 year of age, and administer it jointly with measles vaccine.

Reported Cases of Selected Diseases

Number of reported cases of measles, poliomyelitis, tetanus, diphtheria, and whooping cough, from 1 January 1998 to date of last report, and the same epidemiological period in 1997, by country.

Country/Territory	Date of last report	Measles				Polio		Tetanus				Diphtheria		Whooping Cough	
		Confirmed 1998			Confir-med*			Non Neonatal		Neonatal					
		Labo-ratory	Clini-cally	Total	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997
Anguilla	3-Oct	0	0	0	0	0	0	...	...	...	0	...	0	...	0
Antigua & Barbuda	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
Argentina	3-Oct	6,257	...	6,257	19	0	0	9	18	0	3	1	0	29	321
Bahamas	3-Oct	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Barbados	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
Belize	3-Oct	0	0	0	0	0	0	...	2	...	1	...	0	...	0
Bermuda	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
Bolivia	3-Oct	242	0	242	2	0	0	11	2	7	7	6	1	32	77
Brazil	3-Oct	1,292	71	1,363	9,051	0	0	...	58	...	13	...	32	...	101
British Virgin Islands	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
Canada	3-Oct	8	3	11	577	0	0	...	2	...	...	...	1	772	2,415
Cayman Islands	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
Chile	3-Oct	0	0	0	41	0	0	5	4	1	0	0	0	561	321
Colombia	3-Oct	2	12	14	55	0	0	0	18	3	17	2	2	81	15
Costa Rica	3-Oct	0	0	0	7	0	0	...	2	...	0	...	176	...	10
Cuba	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
Dominica	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
Dominican Republic	3-Oct	0	0	0	1	0	0	5	17	0	0	3	4	7	1
Ecuador	3-Oct	0	0	0	0	0	0	10	42	14	19	17	17	136	148
El Salvador	3-Oct	0	0	0	0	0	0	0	3	0	2	0	0	0	2
French Guiana	...	...	...	...	...	0	0	...	...	...	...	...	...	...	...
Grenada	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
Guadeloupe	3-Oct	1	0	1	72	0	0	...	...	...	...	...	...	...	...
Guatemala	3-Oct	0	1	1	8	0	0	...	5	4	6	0	0	377	92
Guyana	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
Haiti	3-Oct	...	...	...	0	0	0	...	0	...	0	...	0	...	0
Honduras	3-Oct	1	0	1	5	0	0	5	5	1	1	0	0	23	121
Jamaica	3-Oct	1	0	1	0	0	0	1	0	0	0	0	0	0	1
Martinique	...	...	...	...	0	0	0	...	...	...	...	...	...	...	...
Mexico	3-Oct	0	0	0	0	0	0	105	104	17	20	0	0	132	292
Montserrat	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
Netherlands Antilles	...	...	...	...	...	0	0	...	...	...	...	...	...	...	...
Nicaragua	3-Oct	0	0	0	0	0	0	1	10	0	0	0	0	0	41
Panama	3-Oct	0	0	0	0	0	0	1	1	0	1	0	0	120	85
Paraguay	3-Oct	2	0	2	76	0	0	9	24	8	11	0	0	10	24
Peru	3-Oct	0	0	0	56	0	0	18	42	4	26	1	1	229	608
Puerto Rico	3-Oct	0	—	0	0	0	0	...	...	...	...	...	...	...	...
St Vincent/Grenadines	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
St. Kitts/Nevis	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
St. Lucia	3-Oct	0	0	0	0	0	0	...	0	...	0	...	0	...	0
Suriname	3-Oct	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Trinidad & Tobago	3-Oct	0	0	0	1	0	0	...	2	...	0	...	0	...	0
Turks & Caicos	3-Oct	0	0	0	0	0	0	...	1	...	0	...	0	...	0
United States	3-Oct	62	—	62	110	0	0	32	32	...	...	1	5	4,200	3,779
Uruguay	3-Oct	1	0	1	2	0	0	...	0	...	0	...	0	...	10
Venezuela	3-Oct	0	4	4	22	0	0	15	18	2	6	0	0	241	393
TOTAL		**7,869**	**91**	**7,960**	**10,106**	**0**	**0**	**227**	**414**	**61**	**133**	**31**	**239**	**6,950**	**8,857**

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

Dr. Mary Lou Clements-Mann: In Memoriam

The Special Program for Vaccines and Immunization would like to pay a special tribute to Dr. Mary Lou Clements-Mann, who died tragically in the Swissair flight that crashed off the cost of Nova Scotia, Canada, on September 2.

Dr. Clements-Mann was a distinguished expert in vaccine development and a global advocate of the role of vaccines in health worldwide. She graduated from Texas Tech University with a degree in chemistry, and the University of Texas (Southwestern) Medical School in Dallas. She also earned advanced degrees from the University of London and from the Johns Hopkins School of Public Health. Dr. Clements-Mann began her career in public health as a medical trainee with the Centers for Disease Control and Prevention. She joined the global effort to eradicate smallpox and established a vaccination program in one of India's largest states. She later founded and became the first director of the Center for Immunization Research at Johns Hopkins University, where she was involved in developing vaccines for diseases such as malaria, dengue, influenza, rotavirus and other respiratory viruses. Dr. Clements-Mann also made a significant contribution towards the development of an AIDS vaccine. She had become an outspoken proponent of expanded clinical trials of candidate AIDS vaccines. At the time she died, Dr. Clements-Mann was the principal investigator of a Johns Hopkins study using a Salmonella-based vaccine.

Dr. Clements was accompanied by her husband Dr. Jonathan Mann, a renowned AIDS researcher who's successful public health career included directorships at the Global AIDS Program of the World Health Organization and at the International AIDS Center of Harvard's University AIDS Institute.

Source: School of Hygiene and Public Health, Johns Hopkins University and *USA Today*, 4 September 1998.

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