

EPI Newsletter

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IMMUNIZE AND PROTECT YOUR CHILDREN

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First Vaccination Week in the Americas: Results and Conclusions

The first vaccination week in the Americas (VWA) was conducted in June 2003. It was proposed by the Ministers of Health of the Andean Region and endorsed by the Ministers of Health of South and Central America, Mexico, and several English-speaking Caribbean countries. The binding principles of the initiative were the reduction of inequities through the provision of immunization and the promotion of Pan-Americanism. Countries targeted high-risk populations and border areas during the VWA. Implementation of this strategy helped to strengthen routine immunization programs by reaching population groups often excluded. Other objectives included sustaining measles eradication and maintaining immunization high on the political agenda of the countries.

Nineteen countries participated in the initiative: Argentina, Bahamas, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Suriname, Uruguay, and Venezuela. The immunization goal was 14,085,451 children aged <5 years using different antigens (depending on the needs of each country) and 3,000,000 women of childbearing age (WCBA) with Td. Some countries included male and female populations of childbearing age, while administering at the same time Td vaccine, folic acid, and vitamin A supplements. A few countries targeted children aged <5 years.



Results

To evaluate performance, the following data were collected:

- Number of municipalities achieving 95% coverage for measles vaccination;
- Percentage of supervision and rapid coverage monitoring (RCM) visits performed vs. number of visits planned;
- Number of homes visited during active search;
- Number of suspected measles cases found that were missed in the surveillance system; and
- Proportion of areas where 80% or more of the mothers interviewed had heard about the vaccination week.

Among children aged <5 years, 13,583,888 were vaccinated (97% of the target).

Peru intensified its routine vaccination nation-wide and prioritized 815 of its 1,828 districts by administering all antigens in these high-risk districts. Venezuela followed the same strategy, focusing on 108 of its 365 municipalities. Brazil targeted 86 municipalities bordering 7 countries. In addition to the vaccination week, Colombia held a second round of routine vaccination with all antigens during June. Countries such as Uruguay and Chile used the vaccination week as an opportunity to search for individuals not reached by the routine program. Bolivia and Paraguay implemented follow-up campaigns against measles and coordinated the last week of the follow-up campaign to

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Strategies used

Social Communication

With the technical support of PAHO's Unit of Public Information (PIN) in Washington, D.C, a strategy of regional communication was designed with the slogan "*Vaccination: An Act of Love*." This strategy included the preparation of posters, television and radio spots, using the participation of international artists as "Champions for Health in the Americas." The material was distributed to the countries in different languages and adapted to local conditions. Coordination between technical areas and mass media during the dissemination campaign was given high priority, both at PAHO Headquarters and in countries.

The communication campaign was assessed through a survey of mothers and responsible adults in the areas targeted by the intervention. Approximately 80% of the community members interviewed in remote and urban-marginal areas had good knowledge of the VWA.

Cross-border Coordination

Various vaccination strategies were used in border areas, including fixed posts; mobile teams for hard-to-reach areas; widespread regional and local communication activities; and the use of health professionals and volunteers for vaccination, monitoring, and supervision.

Cross-border agreements were signed to facilitate the coordination of activities. The agreement between Colombia and Venezuela was signed on 11 April and the agreement between Brazil, Bolivia, and Peru was signed on 1 June. The latter agreement planned for the permanent implementation of vaccination activities in border localities and the achievement of measles eradication in the Americas, as well as a commitment for the integrated implementation of health activities in the area. The authorities agreed to jointly monitor the programmed tasks. Existing cross-border agreements were reactivated in several countries.

coincide with the VWA. In Central America, the vaccination week served to improve coverage with all antigens and implement other activities such as Vitamin A supplementation and parasiticide application. In Honduras, men were vaccinated as part of a rubella elimination plan.

Countries seized the opportunity to catch up on their immunization schedule in a large number of high-risk districts and municipalities. High-risk districts were defined by the presence of indigenous populations, low coverage rates, poor sectors in peri-urban and rural areas, areas with high migration, and border communities. In addition, countries prioritized areas at epidemiological risk given their living conditions, poor access to health services, and ecological environment. Some countries also introduced activities aimed at reducing the emergence of vaccine-derived polio cases and advancing the neonatal tetanus elimination initiative. Resources were mobilized both at the international level (from PAHO, UNICEF, CDC) and at country level, through the Interagency Coordination Committees and funds from the different Ministries of Health.

2004 Initiative

The second regional vaccination activity will be conducted during the week of 24-30 April 2004. The United States (with support from the CDC) and Spain will participate in the vaccination week during 2004, making it the first Ibero-American Vaccination Week.

Following are some lessons learned to be considered for the organization of the next vaccination week:

- Maintaining the priority of the VWA as a way of supporting the routine immunization program, as well as for strengthening NIDs for the interruption of measles and rubella transmission, as planned by the countries;
- Developing a specific methodology to evaluate results and orient routine activities;

- Defining accurate costs of the activities implemented and ensuring that the Ministries incorporate these costs in their budgets;
- Including the programming of the VWA in the countries' plans of action, as part of the strategy for prioritizing and strengthening the Expanded Program on Immunization (EPI);
- Programming the additional rounds needed to ensure that immunization schedules are completed among excluded population groups since the vaccination week must serve as the starting point for vaccination catch-up in first-time clients;
- Registering and exchanging information, especially in border areas;
- Including surveillance and immunization teams in the activities of the immunization week to incorporate active searches.

Conclusions

The VWA is a regional tool that allows prioritization of immunization within the political agenda of all countries, promotes Panamericanism, revitalizes activities in border areas, strengthens the primary care network in high-risk areas, and reinforces the goal of inequity reduction by reaching population groups traditionally excluded from vaccination services.

The political commitment and resource allocation by the countries, interagency coordination, social mobilization, and the general communication strategy were fundamental for the success of the VWA. The technical and economical support from PAHO, UNICEF, the CDC, the International Federation of Red Cross and Red Crescent Societies, and the Organismo Andino en Salud (ORAS), ensured that the first VWA was a regional success.

Summary of EPI Evaluation in Belize, May 2003

Purpose

The purpose of the Expanded Program on Immunization (EPI) evaluation was to improve program performance, provide reliable information for decision-making, and ensure that the financial commitment and planning will sustain present EPI gains and the future introduction of new vaccines. The strengths, weaknesses, and factors that facilitate and hinder the achievement of program objectives were also defined. In addition, the evaluation determined users' satisfaction. The data gathered will also be used to develop a five-year plan of action to strengthen the program.

Background

Belize, the only English-speaking country located in Central America, has a total population of 249,800 (2000 census). The country has six administrative and health districts: Belize City, Cayo, Corozal, Orange Walk, Stann Creek, and Toledo Districts.

The Government is responsible for providing health care for the entire population, which is usually at no cost to the user. There are 76 public health facilities in Belize (39 health centers and 37 rural health posts) and these facilities provide primary health care services, including maternal and child health (MCH) care, immunizations, and vector control. Most centers also provide outreach services which account for approximately 40% of the centers' service delivery.

The EPI in Belize started in 1977. Vaccination coverage for BCG, OPV, DPT, and measles/MMR has increased steadily over the years. OPV coverage has risen from 44% in 1980 to 86% in 1993 and 93% in 2002. Similarly, measles coverage rose from 43% in 1982 to 83% in 1993; in 2002, coverage with MMR was 89%.

Methodology

The evaluation team consisted of international experts, EPI Managers, and health practitioners from the Ministry of Health, Belize. These members were divided into four evaluation teams. Each team was assigned to 1 or 2 health districts. Teams conducted visits to the health centers, district hospital and private practitioners in their assigned district(s) in order to evaluate immunization and surveillance activities.

Seven questionnaires were prepared for collecting information on operational and management issues. One was prepared for the users of the service. Questions on operational and management issues were directed to decision-makers and health workers in public and private sectors. The questionnaire format consisted of "Yes/No" questions grouped by program component. Questions were categorized and used to give an overall performance indicator for each program area.

Users of the immunization program were interviewed to obtain their knowledge and views of the program. The evaluation was conducted over a period of eighteen days with the first five days being preparatory. Approximately 70% of the evaluation time was devoted to fieldwork.

Data Analysis

A government census software program, IMPS4.1, was used for data entry and analysis. Frequency analysis, cross-tabulations, and supporting graphs were created. Qualitative analysis was done where necessary and a matrix of achievements, problems and recommendations was developed.

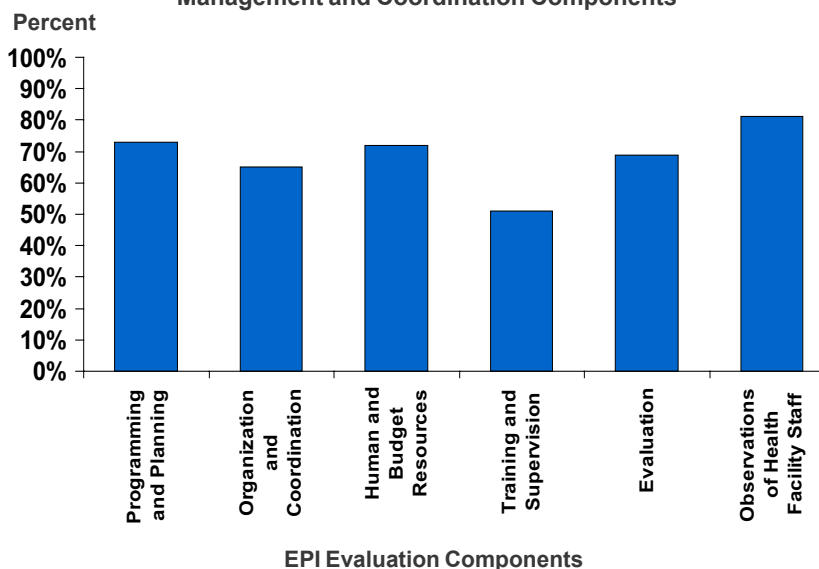
General Findings

Field visits were conducted in all 6 health districts and surveys were conducted in 37 public health facilities and 7 private health facilities. A total of 296 interviews were conducted at all levels. The interviewees included Ministry of Health staff and a cross-section of public and private officials and representatives of non-governmental organizations.

Two-hundred and twenty-one users of the MCH-EPI services were interviewed. Twenty-nine percent of the users were interviewed in health centers. There was no refusal of interview by either health personnel or users.

The EPI in Belize is a well-coordinated and well-executed program with a national annual work plan and monthly evaluations. Facilities were adequate and had convenient locations and hours for vaccination. Teams of dedicated and qualified people staffed the facilities. The evaluation found an adequate supply of vaccines. The cold chain was effectively maintained. Data collection and reporting was excellent. A reliable data source existed for determining the target population. Written guidelines for MCH/EPI program were present at sites

**Figure 1. Belize EPI Evaluation
Management and Coordination Components**



visited. There was a good telecommunication link between health facilities

Evaluation of EPI Components

The major program components reviewed were (1) organization, coordination and programming; (2) biologicals, cold chain, and logistics; (3) training and supervision; (4) surveillance system; and (5) information system. Figure 1 shows the percent score for each evaluated component pertaining to management and coordination and Figure 2 shows the score for technical components. The percent score represents the proportion of all questions for a component that were answered with "Yes." This provides managers with simple but useful information to quickly assess what management resources may be required to improve performance in a particular component. Because the indicator for each component evaluated is based on a series of questions, further analysis of responses to each question should provide a manager with additional information to understand the causes of poor performance.

Training and supervision and epidemiological surveillance were the components with lowest performance. There was no procedural manual for supervision or standardized supervisory tools. Supervisory visits were scheduled but these were often curtailed due to lack of transportation, insufficient staff, or the need for the supervisor to be involved in service delivery at the health center. Plans for training were developed at the national level and also at the district level, but were not always implemented. Most health staff had not been exposed to comprehensive EPI or surveillance training within the last five years. Updates were conducted at some meetings and one one-day training session (mainly on surveillance) was held. Of those health workers who were trained, some passed the information on to other care providers, but this was not done systematically. Health care providers stated that manuals and written standards for epidemiological surveillance existed in the health facilities, but these could not be located for observation. The case investigation forms found at the health centers were generally for measles/rubella. Case investigation forms for acute flaccid paralysis (AFP), neonatal tetanus (NNT) and other EPI diseases were not found.

There was no annual report on the surveillance of vaccine-preventable diseases. Active case-finding is not usually carried out, but, if it is done, case-finding for measles/rubella cases is mainly conducted in schools and day-care centers. The surveillance indicators over the past five years have been greater than 85%. However, the percentage of specimens that

arrived at the regional laboratory within 5 days of being taken was 24% in 2002. This indicator was implemented in 2000 and, since then, has ranged from 13% to 24%.

Public health child health services are delivered by nurses. Over 95% of the interviewees were nurses or had a nursing background. Over 80% of the nurses interviewed were knowledgeable of the case definition for measles/rubella and AFP. However, > 50% of staff interviewed did not know the case definition for NNT. The control measures that should be instituted for a suspected case of measles/rubella were known by more than 50% of staff. More than 60% of staff did not know the surveillance indicators for measles/rubella.

At the centers where blood taking was performed, almost all staff reported that there were sufficient specimen containers and carriers. About 30% of rural health nurses were trained to do blood taking, however at most health centers the patients were sent to the district hospital to have blood taken.

A simple validation of the surveillance system was done at the Karl Huesner Memorial Hospital, which is the referral hospital in Belize for both public and private sectors. Evaluators reviewed registries for cases presenting at the Accident & Emergency Department during May 2002 to May 2003 and admissions to wards from September 2002

to May 2003. The validation survey revealed that 4 suspected fever-rash cases were missed in 2002. No fever-rash case has been missed in 2003. No AFP case or other vaccine-preventable diseases were missed, with the exception of chickenpox (6 cases), hepatitis B infection, and pulmonary tuberculosis. Admission and discharge registries of district hospitals, including outpatient clinics, were also reviewed to validate the epidemiological surveillance system. There was good correlation between these registries and the data reported.

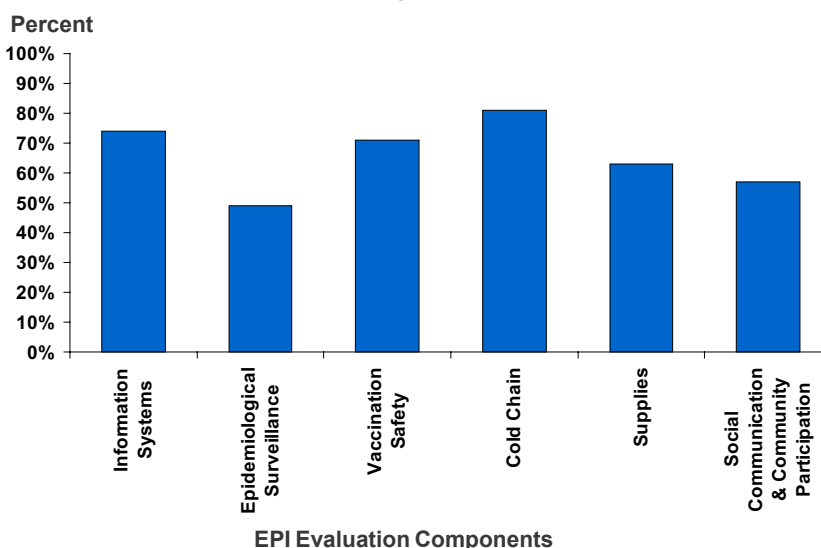
The major problems and recommendations of selected components of EPI are summarized in Table 1.

When the evaluation components were reviewed at the district level, the southern districts, which are predominantly rural, had the lowest performance for all components except for vaccine safety, social mobilization, and community participation.

Interviews of Users

Of the 221 users interviewed, 3% received vaccination services via the private sector while the rest received services at government health centers. Ninety-eight percent of inter-

**Figure 2. Belize EPI Evaluation
Technical and Logistical Components**



viewees stated that vaccines are good and very important for the health and protection of children. It was clear that users knew the importance of vaccines.

Over 96% of users stated that they were satisfied with the care and attention received. Users generally felt that waiting time was not long. Contrary to what was found with other aspects of EPI, users from rural communities were more satisfied with the care given. Users in the districts with the most rural communities had the greatest satisfaction with care.

Conclusions

During the past several years, progress in Belize has been substantial. Coverage for all antigens administered has been greater than 80% for the past ten years. Hepatitis B vaccine was introduced into the program in 1999, *haemophilus influenzae* type b (Hib) in a combination of DPT/Hib in 2001, and subsequently changed to the pentavalent combination

DPT/HepB/Hib in 2002.

Some deficiencies exist in program monitoring, vaccine management, cold chain and supervision. There are major shortcomings in the area of epidemiological surveillance. These deficiencies can be amended through targeted interventions. It should be noted that deficiencies were more significant in rural facilities and in districts of the southern region.

Costs for EPI strengthening over five years were estimated by the reviewers to be US \$2.1 million. The Minister of Health stated his commitment to the provision of the required finances for that goal. In addition, the government of Belize is committed to sustaining the present gains of the program and will continue to use the Pentavalent (DPT/HepB/Hib) vaccine.

The findings and recommendations of the EPI evaluation should result in meaningful and sustainable improvements to the immunization program in Belize.

**Table 1. Belize EPI Evaluation
Major Observations and Recommendations by Component**

Components	Observations	Recommendations
Organization, Coordination, and Programming	No annual or quarterly work-plan is developed at most districts or at the health center level.	Develop annual work-plan with quarterly schedule for each health district.
	The MCH/EPI plan of operation is not always known at the field level.	Regional office and district managers to increase staff awareness of the MCH/EPI plan of operation.
		Conduct training for vaccination coverage monitoring.
Biologicals, Cold Chain, and Logistics	No emergency plan exists for cold chain power failure.	Draft emergency cold chain power failure plan to be prepared as quickly as possible.
	Cold chain lacks inventory, replacement and preventive maintenance plan.	Establish an inventory and prepare plan of operations to cover replacement and preventive maintenance.
	Many health centers do not have a vaccine entry registry book.	Develop and maintain a computerized system for vaccines and logistics.
	Many health centers have no written policies for disposal of biohazard waste.	Develop and implement policies and norms for proper disposal of biohazard waste.
Training and Supervision	There has been no comprehensive training in EPI and/or surveillance within the last 5 years.	Develop training plans to conduct seminars in EPI and surveillance concepts and procedures for all levels.
	There is a lack of guidelines and no standardized tool exists for supervisory visits.	Develop written EPI orientation package for health workers.
		Develop standardized tool for supervision.
Surveillance System	Staff knowledge of surveillance concepts and case definitions is minimal.	Develop and implement materials for increasing knowledge of surveillance concepts and products for all health workers.
	40% of health centers did not have registries for documenting vaccine adverse events or appropriate drugs to manage anaphylaxis.	Use supportive supervision to inform health workers on surveillance standards.
		Train health staff in monitoring and documenting adverse events and ensure that all health centers have the appropriate drugs to manage anaphylaxis.
Information System	The health information system is inadequately computerized.	MOH to define requirements of health information system and develop budget for improving and expanding required computer hardware for all levels.
	There is no manual for health information.	Develop a manual for information system.
	The immunization registry is not standardized and is drawn up manually.	Develop and disseminate printed, standardized registries.

Jungle Yellow Fever: Current Status of Outbreaks in the Region of the Americas

From 1 January 1 to 22 September 2003, a total of 198 confirmed cases of jungle yellow fever resulting in 91 deaths have been reported to the Pan American Health Organization (Table 1). This number represents almost double the number of cases reported annually during each of the two previous years (Figure 1).

Of the 198 confirmed cases, 171 (86%) were identified in two large outbreaks, one in Brazil and one on the Colombian-Venezuelan border. The Ministry of Health of Brazil reported the first outbreak during January - April 2003, in Minas Gerais State, located in the southwest region of the country. In this outbreak, there were 62 cases resulting in 23 deaths. It was controlled after a mass vaccination campaign of all residents in the affected and neighboring counties.

Table 1.
Jungle yellow fever cases and deaths reported by country in the Region of the Americas up to 22 September 2003

Country	Cases	Deaths
Bolivia	6	4
Brazil	62	23
Colombia	89*	40
Peru	21	12
Venezuela	20	12
Total	198	91

* 9 cases were reported in Venezuela.

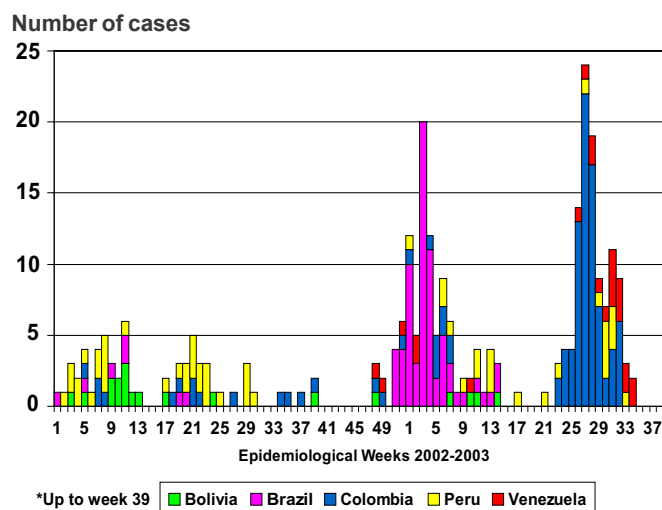
The second outbreak on the Colombian-Venezuelan border is still active. It started in January 2003 with 3 cases in Venezuela and 5 cases in Colombia. Upon the detection of these initial 8 cases, vaccination activities were intensified in the affected areas. After 18 weeks without detecting cases, there was a resurgence of reported jungle yellow fever cases starting in epidemiological week 23 of 2003. To date, Colombia has reported 89 cases and 40 deaths located in the Departments of Norte de Santander and Cesar in the northeast region of the country. Venezuela has reported 20 cases and 12 deaths distributed between Zulia and Tachira States. In Colombia the outbreak is attributed to an intense migration of people employed in the harvesting of an illegal crop in the affected area.

The urban areas close to the outbreak are infested with the urban yellow fever vector *Ae. Aegypti*, highlighting the risk of re-urbanization of the disease in the Americas. Active search for cases of fever and jaundice with or without hemorrhagic purpura is being conducted in all affected areas. The objective of these active searches is early detection of jungle yellow fever circulation so that outbreak control measures can be implemented in a timely manner. The two countries are developing intensive mass vaccination activities. The goal of the campaign is to immunize all residents in the departments of Norte de Santander and Cesar in Colombia, as well

as the States of Zulia and Tachira in Venezuela. Public health authorities of both countries have intensified joint border activities to control the outbreak and to handle the difficulties of vaccinating in areas with displaced populations and ongoing armed conflict.

In addition, Peru has reported 21 cases of jungle yellow fever resulting in 12 deaths in 2003. All of these cases occurred in departments that are enzootic for jungle yellow fever (6 cases in Cuzco, 2 cases in Madre de Dios, 1 case in Puno, and 12 cases in San Martin). Of the 12 cases in San Martin, 11 cases resulting in 5 deaths occurred during epidemiological weeks 27-33. The remaining 10 cases in Peru occurred sporadically.

Figure 1.
Number of jungle yellow fever cases by week Region of the Americas, 2002-2003*



*Up to week 39

Recommendations

1. Yellow fever endemic countries must achieve 100% vaccination coverage in enzootic yellow fever zones. Yellow fever vaccination is necessary for all travelers entering enzootic areas.
2. Yellow fever surveillance must be strengthened. Timely yellow fever surveillance will allow the rapid implementation of control activities when outbreaks are detected.
3. Countries should prepare emergency rapid response guidelines to be used in the event of a yellow fever outbreak.
4. Adequate planning of vaccine supply for routine vaccination and outbreak control is critical. Vaccine should be available at all times to deal with emergencies.
5. The implementation of a comprehensive vector control and surveillance program will keep the density of *Ae. Aegypti* low in urban environments. This approach will also help to prevent dengue outbreaks.

Coverage Rates: DPT-3, OPV-3, Measles, BCG Region of the Americas, 2002

Country	DPT		OPV		Measles		BCG	
	2001	2002	2001	2002	2001	2002	2001	2002
Anguilla	99	99	99	91	92	99	99	99
Antigua & Barbuda	97	98	99	93	96	99	N/A	N/A
Argentina	84	93	85	94	90	95	99	99
Bahamas	98	94	98	93	92	94	N/A	N/A
Barbados	90	87	93	86	93	91	N/A	N/A
Belize	96	89	96	93	93	89	98	97
Bermuda	64	71	34	71	...	75	64	N/A
Bolivia	90	93	90	93	99	99	95	99
Brazil	95	96	99	97	99	95	99	99
British Virgin Islands	99	98	99	99	99	99	99	80
Canada*	...	93	...	93	...	95	N/A	N/A
Cayman Islands	92	93	92	93	87	91	93	92
Chile	99	99	99	99	99	99	99	94
Colombia	80	80	83	82	90	93	87	87
Costa Rica	91	94	92	94	85	94	87	92
Cuba	99	99	99	99	99	93	96	99
Dominica	99	98	99	98	99	99	99	99
Dominican Republic	72	73	87	76	98	89	96	96
Ecuador	90	87	92	88	99	82	99	99
El Salvador	92	81	94	81	82	93	92	92
Grenada	96	98	96	98	99	96	N/A	N/A
Guatemala	93	95	93	95	91	92	94	96
Guyana	85	91	90	93	93	93	95	91
Haiti	49	39	53	41	53	34	49	45
Honduras	95	95	99	95	98	97	93	94
Jamaica	89	86	91	86	85	86	96	90
Mexico	89	91	90	92	95	96	99	92
Montserrat	98	92	98	94	89	99	90	99
Nicaragua	92	85	92	85	99	98	98	93
Panama	99	89	95	85	88	88	99	92
Paraguay	89	87	90	87	90	87	86	84
Peru	90	95	90	95	99	95	87	92
St. Kitts & Nevis	99	97	99	97	94	99	95	99
St. Lucia	95	88	96	90	89	98	99	95
St. Vincent & Grenadines	99	99	99	99	98	99	99	91
Suriname	68	73	65	73	82	73	N/A	N/A
Trinidad & Tobago	91	96	91	96	91	87	N/A	N/A
Turks & Caicos	99	93	97	93	99	86	98	92
Uruguay	90	95	90	95	94	95	99	99
USA	94	...	89	...	91	...	N/A	N/A
Venezuela	63	63	79	77	98	78	85	90

* Canada uses Pentacel vaccine (DTaP-IPV-Hib)

N/A Data not applicable

... Data not available

Data updated: 16 September 2003

In Memoriam: Frederick C. Robbins, M.D., 1954 Nobel Laureate

Frederick C. Robbins, M.D., 86, associated with the Case Western Reserve University School of Medicine for more than 50 years, died on 4 August in Cleveland, Ohio. He was medical school Dean Emeritus and university Professor Emeritus. Dr. Robbins shared the 1954 Nobel Prize in Physiology or Medicine with John F. Enders, Ph.D., and Thomas H. Weller, M.D., for discovering a method of growing poliovirus in a test tube. Previously, the virus had to be studied in monkeys, which were expensive to use and difficult to handle. Their achievement resulted in the development of effective poliomyelitis vaccines and also paved the way for the successful development of vaccines for measles and rubella, other killers of children.

Dr. Robbins was born in Auburn, Alabama, on 25 August 1916. He received his A.B. and B.S. degrees at the University of Missouri in 1936 and 1938, respectively, and earned his medical degree at Harvard Medical School in 1940. World War II interrupted his residency in bacteriology at Children's Hospital Medical Center in Boston. He received the Bronze Star for Distinguished Service and was discharged in 1946. Shortly thereafter, he completed his residency.

Dr. Robbins held positions at Harvard Medical School and several Boston hospitals before coming to Cleveland in 1952 to join the faculty at Case Western Reserve University and to be Director of the Department of Pediatrics and Contagious

Diseases. In 1966, he became Dean of the School of Medicine; he served in this capacity until 1980, when he assumed the titles of Dean Emeritus and University Professor Emeritus.

From 1980 to 1985, Dr. Robbins was president of the Institute of Medicine of the National Academy of Sciences in Washington, D.C., a private organization that promotes and disseminates scientific knowledge to improve human health and advises the federal government. From 1981 to 1985, he held the title of Distinguished Professor in the Department of Pediatrics at Georgetown University, Washington, D.C.

Dr. Robbins is the recipient of numerous honorary degrees and awards from several institutions and organizations. Honors related to Case Western Reserve University include the Special Medical Alumni Association Board of Trustees Award in 1993, an honorary doctor of science degree in 1992, and the first Frank and Dorothy Humel Hovorka Prize, in 1994, given for exceptional achievement in teaching, research and service.

Dr. Robbins served as the Chairman of PAHO's International Commission for the Certification of Poliomyelitis Eradication in the Americas. His dedication and leadership was critical in achieving the polio eradication target and its subsequent certification in the Americas. PAHO, as well as the rest of the world of public health, has lost a great friend and advocate.



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