EPI Newsletter

Expanded Program on Immunization in the Americas

Volume XVI, Number 2 **IMMUNIZE AND PROTECT YOUR CHILDREN** April 1994

Polio: National Commissions Formed

Most of the countries of the Americas have formed National Certification Commissions with the purpose of overseeing the certification of the eradication of indigenous transmission of wild poliovirus. The reports prepared by the national commissions will be reviewed by the International Certification Commission (ICC) when it convenes in Washington D.C. in August of 1994.

Each national certification commission is to document and substantiate that the transmission of indigenous wild poliovirus has been interrupted. The reports will provide a brief history of polio in the country including the year the vaccine was introduced, previous efforts at control, the annual number of confirmed cases, a summary of the intensified phase (1985-94) including the date it was launched, national vaccination strategies, the structure and organization of the program, and yearly OPV3 coverage at one year of age.

Surveillance for acute flaccid paralysis (AFP) has been the main tool of the eradication effort. National reports will specify observed trends since 1985, and include copies of case investigation forms. AFP surveillance results will include 1) probable cases per year; 2) compatible cases by year with detailed charts, maps, and any other relevant data; 3) discarded cases with their final diagnosis; and 4) confirmed cases per year.

Ten laboratories test the stool samples taken from cases and their contacts, as well as selected environmental and community samples.

Polio Compatible Cases by Country, Latin America and the Caribbean, 1993

Countries	Cases Reported	Compatible			
		Total	No Follow Up		Reported Late
			Lost	Died	
Bolivia	49	1	0	0	1
Brazil	499	9	0	5	4
CAREC	26	2	0	2	0
Colombia	187	4	1	1	2
Ecuador	67	1	0	1	0
Guatemala	84	1	0	1	0
Mexico	544	10	2	8	0
Nicaragua	49	2	0	2	0
Peru	123	1	0	0	1
Venezuela	95	2	0	0	2
Other	421	0	0	0	0
Total	2144	33	3	20	10

One of the main concerns of the national commissions and the ICCPE will be to review and determine the final disposition of cases of AFP that have been classified as compatible with polio.

Compatible Cases

Compatible cases are considered failures of the surveillance system, because they occur when:

Two adequate stool specimens were not collected from a probable case within 2 weeks of the onset of the paralysis,

and

there is either an acute paralytic illness with polio-compatible residual paralysis at 60 days,

or

death takes place within 60 days,

or

the case is lost to follow-up.

Surveillance of AFP in the countries of the Region during 1993 showed that of the 2144 reported cases, 33 were classified as compatible with polio. Ten of these were not investigated on time because of late notification, which is a failure of the surveillance system (see Table). Late notification is most often due to the lack of motivation on the part of attending clinicians, whose participation in the reporting system requires further encouragement. PAHO/WHO offers a US$100.00 reward to provide a financial incentive for reporting cases of paralysis that prove to be caused by wild poliovirus.

In this issue:

Twenty of the 33 compatible cases were lost to follow-up because of death. Death from polio is infrequent; it occurs in 2-10% of cases. It is therefore unlikely that 20 deaths due to polio would occur within a year without a major epidemic. Some countries such as Mexico have adopted very strict criteria and classify all AFP cases who have died as compatible. A way to eliminate uncertainty is to conduct post mortem examinations to determine the actual cause of death.

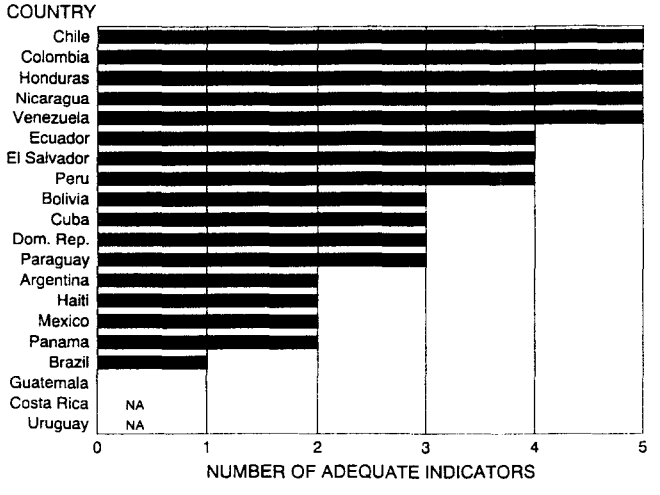
Source: Polio Eradication Surveillance System (PESS)

Meeting the Certification Criteria

Good surveillance for acute flaccid paralysis is the cornerstone of the poliovirus eradication certification process. AFP surveillance data are now being monitored to guide efforts in the Americas. For surveillance to be considered adequate, the following five criteria must be met:

1. weekly negative notification from at least 80% of all weekly reporting units;
2. detection of a rate of at least 1.0 cases of AFP per 100,000 children under the age of 15;
3. investigation, by a trained epidemiologist, of at least 80% of cases of AFP, within 48 hours of notification;
4. collection of two stool specimens within two weeks of paralysis onset, from at least 80% of AFP cases;
5. for at least 80% of AFP cases, collection of stool samples from at least five contacts.

Number of Satisfactory AFP Surveillance Indicators, by Country, Latin America, 1994



Efforts to raise AFP surveillance to adequate levels throughout the Americas will be important in reaching the goal of certification. The accompanying chart shows where things stood on 24 March, 1994 in the American Region.

Measles In Canada In 1993 The Lowest Ever Reported

Canada has set the year 2005 as the date by which it will eliminate indigenous measles. Its coverage and incidence targets are to:

1. *Achieve and maintain 97% coverage with the first vaccine dose at 2 years of age by the year 1997.*
2. *Achieve and maintain 99% vaccine coverage for the second dose before school entry by the year 2000.*
3. *Achieve and maintain an incidence of less than 1/ 100,000 by the year 2000 in each province /territory.*

The following is a review of current elimination efforts.

Epidemiologic situation

As of October 30, 1993, a provisional total of 174 measles cases was reported in Canada by the 10 provincial and 2 territorial health departments. This is the lowest total recorded for the first 10 months of any year since national notification began in 1924, and reflects a 94% decrease from the 2,858 cases reported for the same period in 1992. The projected incidence for 1993 is 0.7 cases per 100,000, the lowest ever reported in this country (Figure 1). The following summarizes the epidemiologic characteristics of cases reported in 1993 as well as recent developments in prevention and control strategies.

In 1993 no cases were reported from 3 provinces (Newfoundland, Prince Edward Island and New Brunswick) and the 2 territories (Yukon and Northwest Territories). Ontario and Quebec (representing 62% of Canada's population) reported 80% of the total cases. In other regions, the number of cases reported ranged from 1 to 17. Compared to 1992, Ontario has experienced a 97% decline, while Quebec experienced a 23% increase.

There has been a remarkable drop in the proportion of cases occurring in school-aged children (5 to 19 years), from 83% in 1992 to 53% in 1993. Figure 2 shows the age-specific incidence rates per 100,000 population. The highest rate of infections was among infants, followed by preschoolers; the rate decreased with increasing age. Additional epidemiologic information pertaining to the vaccination status of cases, the proportion of cases laboratory confirmed, and the proportion of imported or import-related cases is not currently available at the national level. The latter is not considered a significant problem. With the assistance and cooperation of the local and provincial public health departments, federal officials are hoping to intensify the surveillance of measles, moving from the current passive system to an active one in the near future.

Before the introduction of vaccine, measles occurred in 2 to 3- year cycles. The highest incidence was recorded in 1935 with over 83,000 cases (770/100,000 population). The widespread use of measles vaccine since the mid 1960s has resulted in a dramatic reduction in the overall morbidity and mortality due to the disease across Canada. The introduction (timing) and implementation of immunization programs, vaccine products used, and the vaccine coverage over the years has varied greatly among the various jurisdictions. Nevertheless, the immunization programs have

been progressively successful in reducing the burden associated with measles, resulting in 90% to 95% reduction in the reported incidence in the last decade.

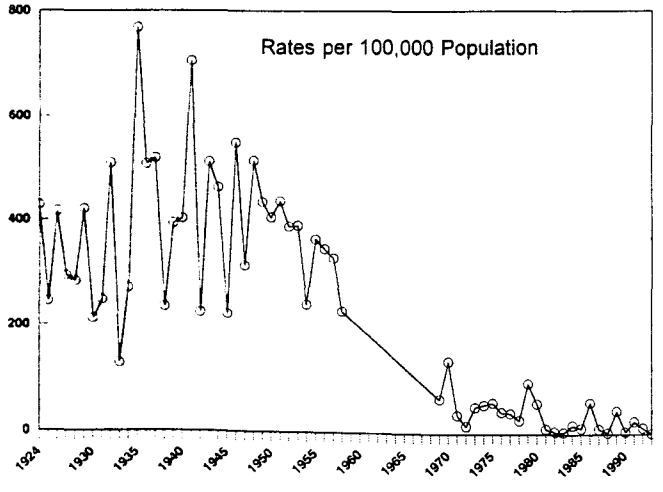
In the past decade, despite ongoing control efforts, continuing occurrence of cases of measles in many parts of the country, at irregular intervals, and sometimes in epidemic proportions, has been a major concern. Many cases, in fact, were reported to have a history of measles vaccination, having received vaccine according to the national recommendation, i.e., after 12 months of age. The generally accepted explanation for the most recent epidemics in Quebec in 1989, and in Ontario during 1990-1991, includes insufficient use of available vaccine, sub-optimal vaccination practices and vaccine failures.

A national survey conducted in the spring of 1993 indicated that 95% of the 2 to 3- year-olds had received at least one dose of measles vaccine, although only 90.5% had documented evidence of receiving the recommended 1 dose of vaccine after their first birthday. The reported vaccine coverage for most school entrants across Canada is greater than 95%.

Measles Consensus Conference And Measles Elimination Efforts

Measles prevention/ elimination has been a high priority issue in Canada since the early 1980s. However, continued occurrence of measles in recent years, although confined to certain geographic areas, has been worrisome and a major concern for public health personnel. Prevention and control measures in outbreaks have been expensive and labor intensive. As a result of these concerns and to develop national goals for measles and the best strategy to achieve them, the Laboratory Center for Disease Control sponsored a national Consensus Conference on Measles, 1-2 December, 1992 [1].

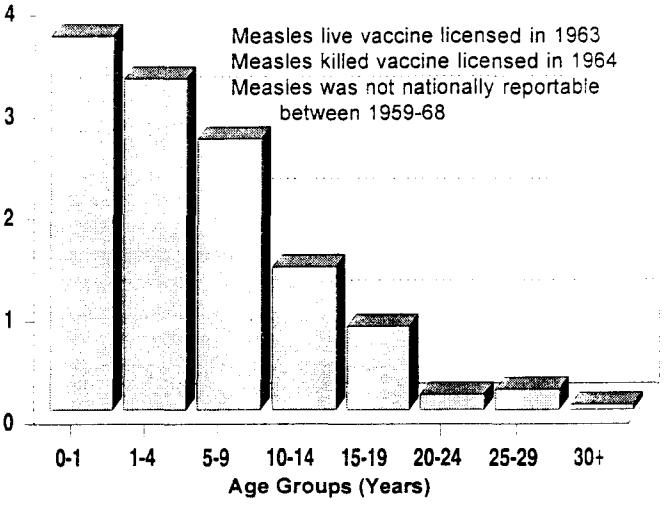
Figure1. Measles: Reported Cases, Canada, 1924-1993
Rates per 100,000 Population



The Consensus Conference recommended measles elimination in Canada by the year 2005. To achieve this goal, implementation of a routine 2- dose schedule (the second dose to be given before school entry) was recommended. However, it was emphasized that the first priority in this schedule still remains the full application of dose one.

Canada's National Advisory Committee on Immunization has recently endorsed the Consensus Conference's recommendations, including measles elimination goal and the 2-dose routine immunization strategy. However, the final implementation of these recommendations will vary depending on the provincial/ territorial government and resources. Some provinces are already taking steps towards implementing the 2- dose strategy.

Figure 2. Measles: Age-Specific Incidence, Canada 1993 (as of Oct 30)



Comments

To achieve measles elimination, sustained cooperation of local, provincial, national and international public health agencies is essential.

Having achieved a rate of less than 1 case of measles per 100,000 population in 1993 in all Canadian provincial/ territorial jurisdictions is remarkable. If measles activity is kept at this rate or lower, this will fulfil, in part, one of the Consensus Conference's recommended targets even earlier than expected, i.e., achieve and maintain an incidence of less than 1/100,000 by the year 2000 in each province and territory.

However, past experience in Canada, as well as in the United States, cautions us that, since a resurgence of measles can happen after a period of low activity, one should not be over optimistic about elimination unless the desired level of immunity is achieved and maintained in all segments of the populations.

Acknowledgement

Assistance of all provincial/territorial epidemiolgists is appreciated.

Reference

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Source: Paul Varughese and Philippe Duclos, Childhood Immunization Division, Bureau of Communicable Disease Epidemiology, Laboratory Center for Disease Control, Health Protection Branch, Health Canada, Ottawa.

Vaccines against Meningococcal Meningitis: Current Status

Etiologic Agents and the Vaccines

Virulent strains of *Neisseria meningitidis* cause sporadic cases and periodic outbreaks or epidemics of meningitis; the strains that belong to serogroups A, B, and C are responsible for 90% of the cases of meningococcal meningitis in the world. Serogroups B and C are generally associated with the endemic disease, whereas the incidence of serogroup A rises during epidemic periods. Countries such as Cuba, Brazil, Colombia, Chile, Argentina, Uruguay, and the Scandinavian countries recently have experienced increases in serogroup B meningitis, especially in children under five years of age, the group with the highest attack rates.

Polysaccharide-based vaccines proved to confer immunity against serogroups A, C, Y, and W135 in the 1960s [1] and 1970s, and have been available on the market since 1981. Their efficacy was age-dependent: the vaccine for serogroup A confers protection in children over 6 months and the vaccine for serogroup C is not effective in children under two years [2,3]. The vaccines for serogroups Y and W135 act in a manner similar to that for serogroup A. Nonetheless, the polysaccharide vaccine for serogroup B is poorly immunogenic and does not protect against the disease. As a result, several alternatives are under study to develop vaccines for this serogroup based on the outer membrane protein of the *N. meningitidis* bacteria, serogroup B, and other surface antigens.

The alternatives under study include development of the serogroup B polysaccharide chemically modified to contain N-propionyl in place of N-acetyl groups coupled to tetanus toxoid [4], the *E. coli* K92 polysaccharide, which cross-reacts with serogroup B when conjugated with tetanus toxoid [5], cloning of the outer membrane protein incorporated into the liposomes, lipopolysaccharide (LPS)-depleted outer membranes or the outer membrane protein of the bacteria. In addition, use of the detoxified lipopolysaccharide or oligosaccharides derived from the LPS (synthetic in some cases) combined with outer membrane protein (OMP), or incorporated into liposomes, is also under study.

In the early 1980s the first vaccines were derived from the outer membrane protein of subgroup B, serotype 2 made of insoluble protein aggregates; they showed low immunogenicity. The more recent vaccines contain outer membrane protein, capsular polysaccharide to maintain solubility of the vaccine, and aluminum hydroxide adjuvant [6].

Efficacy Trials Published to Date

The most recent efficacy trials for several vaccines against meningococcal meningitis are the following:

Walter Reed Army Research Institute, Washington, D.C., USA: Vaccine prepared with the B:15:P1.3 strain, and containing lipoplusaccharide-free outer membrane protein, with serogroup C polysaccharide added, in an aluminum hydroxide adjuvant. The double-blind randomized case-control field trial, was conducted in Iquique, Chile from 1987 to 1989. Two dosages of 100 µg protein were administered to 40,000 volunteers aged 1 to 21 years at an interval of 6 weeks. The subjects were tracked for 20 months. Overall efficacy was 50%, but protection was age-dependent. Efficacy was 70% in the 5 to 21 year-old age group, whereas no protection was observed in children aged 1 to 4 years [7]. Researchers at Walter Reed are continuing their work to develop another generation of the serogroup B vaccine.

National Institute of Public Health, Oslo, Norway: The vaccine contains the outer membrane protein depleted of lipopolysaccharide of the B:15:P1.16 strain, with 3% to 6% high molecular weight protein. It has no capsular meningococcal polysaccharide. To stabilize the protein 3% sucrose was added, and aluminum hydroxide was used as an adjuvant. The vaccine contains class 1, 3, 4, and 5 proteins and was formulated to contain 25 µg of protein per dosage; it was administered in two injections at an interval of 6 weeks. The field study, done in 1988, was conducted as a randomized double-blind placebo-controlled trial with youths 13 to 15 years old. Epidemiologic surveillance continued for 29 months; the observed efficacy was 57%. The authors concluded that the vaccine's efficacy is too low to justify its use in vaccination programs [8].

Instituto Carlos Finlay, Cuba: The Cuban vaccine contains the outer membrane from the B:4:P1.15 strain with traces of lipopolysaccharides, polysaccharide from serogroup C, and high molecular weight protein complex. Aluminum hydroxide gel is used as an adjuvant. Each dose contains 50 µg of protein, 50µg of polysaccharide, and 2 mg of aluminum hydroxide. The randomized double-blind placebo-controlled efficacy trial was conducted in Cuba in 1986-87 among 100,000 schoolchildren (9 to 14 years old). An efficacy of 83% was observed [9].

In São Paulo, Brazil, in which 2.4 million children were vaccinated against meningitis, a placebo-controled efficacy trial demonstrated that the vaccine's efficacy was age-dependent. In children older than 48 months, the efficacy was 74% (confidence interval from 16% to 92%), whereas in children 24 to 47 months old it was 47% (confidence interval -72% to 84%) and in children under 24 months it was -37% (confidence interval less than -100% to 73%) [10].

Reactogenicity of the vaccine: Systemic adverse reactions were slight for all the vaccines studied. Fever, headache, or nausea may occur in up to 10% of persons vaccinated. Local reactions consisting of erythemas, with or without induration and soreness, were recorded in adult volunteers [11,12] but less frequently in children [13].

In Cuba the study of reactogenicity and immunogenicity in children 6 months to 12 years, carried out in 1987, found no significant adverse reactions. The maximum temperature registered among vaccinated groups and those who received the placebo was 37°C or less. The remaining adverse events were erythema and soreness at the point of injection; these were significantly greater in persons who received vaccine than these who received placebo [14].

The analysis of the Norway trial reported only rare and slight adverse reactions [8]. None were reported in the Brazil trial [10].

Other Ongoing Studies

In view of the importance of meningococcal meningitis[15] and the current context of scientific and technological development, the World Health Organization's Global Program on Vaccines is supporting a series of research projects that apply complex technologies, such as developing conjugated vaccines, cloning important bacterial proteins, and other technologies, in order to develop more efficacious vaccines for children less than 2 years old[16].

At the request of the Government of Brazil, PAHO's Regional System for Vaccine Development (SIREVA)[17] prepared the Master Plan for the development of an improved vaccine for serogroup B. At present this project includes the participation of three Brazilian institutions: the Instituto Adolfo Lutz and the Instituto Butantan in São Paulo, and Bio-Manguinhos/FIOCRUZ in Rio de Janeiro.

The World Health Organization recently organized a comparative trial, among 400 adolescents, on the immunogenicity and reactogenicity of 2 and 3 doses of the vaccines produced in Norway and Cuba. The trial is under way in Iceland, and is expected to conclude in July of this year.

In Chile, the health ministry undertook another comparative trial on the immunogenicity of these two vaccines, administering them to different age groups, including children under 1 year old and young adults.

The health ministry of Argentina is considering an efficacy trial of the vaccine in the province of La Pampa.

Conclusions and Relevance for National Immunization Programs

The vaccine produced in Norway is still considered experimental. The vaccine produced at Walter Reed Army Research Laboratory continues to be in the research and development phase. The vaccine produced in Cuba has been registered in several countries of Eastern Europe and Africa, and in some countries of Latin America (Argentina, for use in persons over 4 years; Brazil, where it is registered on a provisional basis; Colombia, registered and licensed; Chile, in process; and Cuba).

Based on the knowledge and published data from the efficacy trials conducted to date, it may be concluded that the vaccine produced in Cuba is efficacious in the over-4-year old group. In one of the trials, low efficacy was observed among children aged 2 to 4 years and little or no efficacy was seen in those under 2 years, the group generally most affected by the disease. However, these trial results are inconclusive and somewhat contradictory. It is crucial therefore that research continue with a view to developing an improved vaccine against serogroup B of meningococcal meningitis, and that the development of case-control efficacy trials continue to determine with certainty, among other things, if the vaccine is efficacious among children under 4 years old.

In those countries or regions that are facing the problems that stem from the increased incidence of meningococcal meningitis, especially of serotype B, it is advisable that the decision to use the vaccine currently available takes into account the available data on attack rates, known age-specific efficacy, and the analysis of the prevalent serogroups and serotypes of *N. meningitidis*, in addition to its age specific cost-benefit.

PAHO is available to any country or subregion that intends to design efficacy trials, to assist in standardizing protocols and to follow up as needed for comparisons with similar studies.

Source: This article was prepared collaboratively by the Expanded Program on Immunization, Special Program on Maternal and Child Health and Population, the Division of Communicable Disease Prevention and Control, and the Division of Health and Development of the Pan American Health Organization

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Injections: Improper Infection-Control Practices

Reports of the transmission of infectious agents by a single injection with a contaminated needle and syringe or from a multidose vial have been limited. However, the frequency with which injections are administered in health-care settings increases the likelihood of transmitting infection if proper infection-control practices are not followed when medications, vaccines, and other parenteral substances are injected. The following infection-control principles are consistent with previous CDC recommendations and should be adhered to by health-care providers and all other persons who administer parenteral substances by injection:

- A needle or syringe that previously has been used to inoculate a patient is considered contaminated and should not be used to aspirate medication or vaccine from a multidose vial if any of the contents of the vial will subsequently be administered to another patient.
- All hypodermic needles, as well as the lumens of syringes used to administer parenteral substances, should be sterile. Needles and syringes manufactured for single use only should be discarded and should not be reprocessed or reused on a different patient because the reprocessing method may not sterilize the internal surfaces and/or may alter the integrity of the device.
- Reusable needles and syringes should be cleaned and then sterilized by standard heat-based sterilization methods (e.g., steam autoclave or dry-air oven) between uses. Reprocessing of reusable needles and syringes by use of liquid chemical germicides cannot guarantee sterility and is not recommended.
- Used needles should never be recapped or otherwise manipulated using both hands or any part of the body. Either a one-handed "scoop" technique or a mechanical device designed for holding the needle sheath should be used if recapping is necessary. Used needles and syringes should be disposed of in puncture-resistant containers located as close as practical to where the needles and syringes are used.

Source: Morbidity and Mortality Weekly Report (MMWR), December 24, 1993/Vol.42/No.50

Childhood Immunization and HIV Infection

The World Helath Organization (WHO) estimates that over one million children have been infected with the Human Immunodeficiency Virus (HIV). The majority of HIV-infected children contract HIV infection from their mothers, but are not diagnosed until after the scheduled time for routine immunizations.

WHO and UNICEF recommend that all infants with asymptomatic HIV infection receive the routine childhood immunization (BCG, DPT, OPV, measles) according to their national schedules. As well, children suspected or known to be HIV-infected should be given a dose of measles vaccine at 6 months of age, followed by a second dose at the scheduled time (usually 9 months in developing counties).

WHO/UNICEF Recommendations for the Immunization of HIV-Infected Infants and Women of Child-bearing Age

Vaccine	Asymptomatic HIV Infection	Symptomatic HIV Infection	Optimal Timing of Immunization
BCG	yes	no	birth
DPT	yes	yes	6, 10, 14 weeks
OPV	yes	yes	0, 6, 10,14 weeks
Measles	yes	yes	6, 9 months*
Tetanus Toxoid	yes	yes	5 doses**

* Measles vaccine is recommended at 9 months of age in most developing countries and 12-15 months in most industrialized countries. HIV-infected infants should be given an extra dose at 6 months.

** 5 doses of tetanus toxoid for women of child-bearing age: at first contact, 4 weeks after TT1, at least 6 months after TT2, and at least 1 year after TT3 and TT4

Studies indicate that hepatitis B vaccine is safe to administer to HIV-infected individuals. In countries with endemic neonatal tetanus, all women of childbearing age should be immunized with tetanus toxoid, regardless of their HIV status.

Source: EPI Update. November 1993, World Health Organization

Immunization in the 90s: Challenges and Solutions

October 5 - 7, 1994

The Québec Hilton, Québec City, Québec

Objectives: To present a forum for the discussion and exchange of ideas related to the practical aspects of immunization programs in Canada. The conference will cover issues such as vaccine supply and delivery, the increasing variety of vaccines and heavier schedules, education, assessment of vaccine programs (vaccine coverage, immunization records, cold chain, surveillance of adverse events), obstacles to immunization, regulations and legislations, and global immunization efforts. Primary focus will be on childhood immunization.

Organized by the Laboratory Centre for Disease Control, Health Canada, with support from the Private Sector.

Call for Abstracts: Time has been allotted within the conference for peer-reviewed presentations (poster and oral) that relate to the objectives of the conference. Health units are also encouraged to submit proposals for presentations of material related to education and promotion. Abstract submission forms, which can be acquired from the office listed below, must be received before June 3, 1994.

To receive a registration package/abstract submission form contact: Mr. Chuck Schouwerwou, Conference and Committee Coordinator, Childhood Immunization Division, Bureau of Communicable Disease Epidemiology, Laboratory Centre for Disease Control, 2nd Floor, L.C.D.C. Building, Tunney's Pasture, Ottawa, Ontario, K1A 0L2, Tel: (613) 957-1352/ Fax: (613) 998-6413

Reported Cases of Selected Diseases

Number of reported cases of measles, poliomyelitis, tetanus, diphtheria, and whooping cough, from 1 January 1993 to date of last report, and the same epidemiological period in 1992, by country.

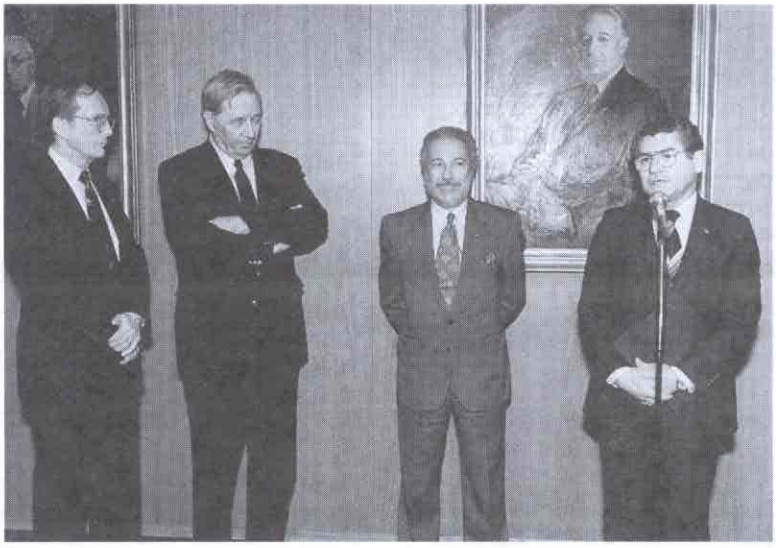
Subregion and country	Date of last Report	Measles				Poliomyelitis		Tetanus				Diphtheria		Whooping Cough	
		Reported		Confirmed				Non Neonatal		Neonatal					
		1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993	1992
LATIN AMERICA															
Bolivia	31 Dec.	...	...	2702	4037	0	0	...	...	24	42	4	20	245	284
Colombia	31 Dec.	...	...	5668	7976	0	0	40	138	86	108	40	76	617	872
Ecuador	31 Dec.	...	...	3628	4356	0	0	74	171	79	71	23	10	147	320
Peru	31 Dec.	...	...	1730	22252	0	0	98	118	120	128	10	6	990	364
Venezuela	31 Dec.	...	...	20244	11949	0	0	79	81	25	27	0	1	458	507
Southern Cone															
Argentina	31 Dec.	...	...	5048	20551	0	0	41	54	5	4	5	4	1008	2078
Chile	31 Dec.	...	412	1	412	0	0	14	15	1	3	0	7	592	234
Paraguay	31 Dec.	...	...	2066	864	0	0	61	38	20	...	6	6	195	...
Uruguay	31 Jul.	...	...	7	187	0	0	2	4	0	0	0	0	13	29
Brazil	31 Dec.	...	...	4326	7934	0	0	456	1441	74	230	291	276	3716	5152
Central America															
Belize	31 Dec.	16	11	0	11	0	0	0	0	0	0	0	0	0	0
Costa Rica	31 Dec.	792	2357	273	2357	0	0	0	2	0	0	...	0	10	29
El Salvador	31 Dec.	38	509	38	509	0	0	10	30	18	25	0	0	24	33
Guatemala	31 Dec.	278	97	17	97	0	0	12	32	19	8	0	3	123	156
Honduras	31 Dec.	13	58	13	58	0	0	14	28	5	10	0	0	15	425
Nicaragua	31 Dec.	383	2332	339	2332	0	0	7	21	6	9	0	0	47	333
Panama	31 Dec.	219	845	90	845	0	0	9	6	5	3	0	0	218	26
Mexico	31 Dec.	...	792	169	533	0	0	151	192	98	129	0	0	148	136
Latin Caribbean															
Cuba	4 Dec.	...	...	0	12	0	0	2	4	0	0	0	0	11	1
Haiti	...	...	...	...	...	0	0	...	...	...	...	...	...	...	...
Dominican Republic	31 Dec.	...	...	4637	7650	0	0	19	37	0	5	6	31	5	71
CARIBBEAN															
Antigua & Barbuda	31 Dec.	1	0	0	0	0	0	1	0	0	0	0	0	0	0
Bahamas	31 Dec.	2	0	0	0	0	0	0	0	0	0	0	0	0	5
Barbados	31 Dec.	44	0	0	0	0	0	0	1	0	0	0	0	0	0
Dominica	31 Dec.	14	0	0	0	0	0	0	0	0	0	0	0	0	0
Grenada	31 Dec.	8	0	0	0	0	0	0	0	0	0	0	0	0	0
Guyana	31 Dec.	26	0	0	0	0	0	0	0	0	0	0	0	0	0
Jamaica	31 Dec.	0	0	0	0	0	0	3	5	0	0	0	0	0	0
St. Kitts/Nevis	31 Dec.	4	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Vincent	31 Dec.	...	...	0	0	0	0	0	0	0	0	0	0	0	0
Saint Lucia	31 Dec.	20	0	0	0	0	0	1	0	0	0	0	0	0	0
Suriname	31 Dec.	15	0	0	0	0	0	0	1	0	0	0	0	0	0
Trinidad & Tobago	31 Dec.	0	0	0	0	0	0	8	8	0	0	0	0	7	4
NORTH AMERICA															
Canada	31 Dec.	...	...	184	2901	0	0	6	4	0	0	4	2	6777	3615
United States	31 Dec.	...	2198	281	2231	0	0	43	44	0	0	0	3	6335	3935

... Data not available.

PAHO Establishes Annual Immunization Award

The Pan American Health Organization established a $30,000 endowment in February, 1994 to award an annual immunization prize to national health workers in recognition of their outstanding contributions to their national immunization programs. The PAHO/EPI Technical Advisory Group (TAG), will act as the Awarding Committee for the PAHO Annual Immunization Award.

The new endowment was made possible when the Prince Mahidol Award Foundation gave Dr. Ciro de Quadros, coordinator of PAHO's Expanded Program on Immunization, an award for outstanding contributions to the advancement of medical, public health and human services in the world. Dr. de Quadros earmarked $15,000 of the award toward a PAHO endowment, a sum that was matched by the Organization.



Dr. Carlyle Guerra de Macedo, Director of PAHO, announces the establishment of the PAHO Annual Immunization Award. Also present (from left to right): Dr. John Sever, Rotary International, Dr. Donald A. Henderson, Chair of PAHO Technical Advisory Group (TAG) on Vaccine Preventable Diseases, and Dr. Ciro de Quadros, EPI Program Coordinator.

The Prince Mahidol Award Foundation recognized Dr. de Quadros and, by extension, the EPI workers of the American Region for achievements in eradicating wild poliovirus: no indigenous wild poliovirus has been detected in the Americas in two and one-half years.

Her Royal Highness Princess Maha Chakri Sirindhorn of Thailand, awarded the Prince Mahidol prize--consisting of a medal, a certificate, and a sum of money--to Dr. de Quadros in a ceremony held at the Royal Palace. The Prince Mahidol's Award Foundation, the most prestigious in Asia in the field of medicine and public health, was formed on 1 January 1992, in commemoration of the Centenary of the Birthday of Prince Mahidol of Songkla, the father of modern medicine and public health in Thailand.

Prince Mahidol was educated in the Thai Court, England, and Germany before graduating as a Naval Officer and joining the Royal Thai Navy where he first developed an interest in public health. He acquired a Certificate in Public Health and a Doctor of Medicine degree (cum laude) from Harvard University in 1921 and 1928, respectively.

His Royal Highness' interest in medicine stimulated him to devote himself to the promotion of medical education in Thailand in general. He started scholarship programs for promising Thai students to study basic sciences, medicine and public health abroad, especially in the U.S. While still at Harvard, he succeeded in convincing the Rockefeller foundation to agree to help the Thai Government in financing the development and modernization of the medical and nursing education in Thailand. Prince Mahidol died at the age of 37 in 1929.

The PAHO Annual Immunization Award provides a means to share the recognition of the Mahidol prize and a continuing incentive to health workers in the countries who have made the success of EPI possible.

The *EPI Newsletter* is published every two months, in Spanish and English by the Expanded Program on Immunization (EPI) of the Pan America Health Organization (PAHO), Regional Office for the Americas of the World Health Organization (WHO). Its purpose is to facilitate the exchange of ideas and information concerning immunization programs in the Region, in order to promote greater knowledge of the problems faced and their possible solutions.

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