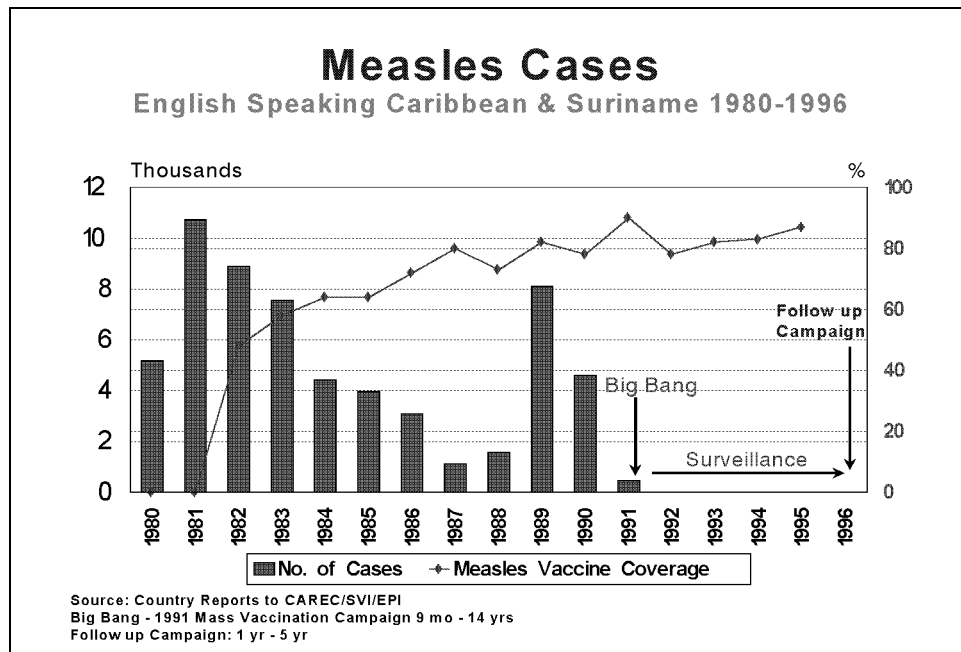


THIRTEENTH MEETING OF CARIBBEAN EPI MANAGERS

FINAL REPORT
Miami Beach, Florida
4 to 6 November 1996



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I. Introduction

The Thirteenth Meeting of the Caribbean EPI Managers was held in Miami Beach, Florida from 4-6 November 1996. Participants at the Meeting were welcomed by Dr. Eleni D. Sfakianki, Medical Executive Director, Department of Health of Dade County, Florida. Dr. Peter Figueroa, Principal Medical Officer at the Ministry of Health in Jamaica chaired the plenary sessions, and Dr. Ciro A. de Quadros, Director of PAHO's Special Program for Vaccines and Immunization served as Secretary.

The Meeting brought together over 65 health officials from 19 countries of the English-speaking Caribbean and Suriname and representatives of the French Departments of Guadeloupe and Martinique and the Netherland Antilles, represented by Bonaire, St. Martin and Curaçao. Present were also representatives of Ontario's Ministry of Health in Canada, England's Department of Health, the United States' Centers for Disease Control and Prevention, Los Angeles and Dade Counties Department of Health, the Caribbean Epidemiology Center and UNICEF, as well as technical staff from SVI/ PAHO.

II. Objectives of the Meeting

The Meeting had as its main objectives to review the EPI program in the Caribbean and to identify obstacles which might impede achieving program targets. Considerable time was devoted to assessing the current situation of rubella virus circulation and that of congenital rubella syndrome (CRS) in the Caribbean. There was consensus among participants on the need to raise awareness, particularly among women and the countries' government officials, on the seriousness of this disease. Emphasis was placed on determining the critical elements that would make up an effective strategy for the control/elimination of rubella and CRS. As part of this effort, each country performed their own cost - benefit analysis of rubella/CRS and its immediate elimination by a mass campaign with rubella containing vaccine. This analysis should serve as a baseline for further refinement at the country level.

As performed every year, country reports and the 1996 National Work Plans were reviewed and analyzed and the 1997 National Work Plans were elaborated.

Holding the longest record in the Western Hemisphere of five years without

measles, the English-speaking Caribbean reviewed the impact of their current measles strategies, with special focus on surveillance aspects, such as case definition, outbreak prevention and laboratory diagnosis. Similarly to the discussion held in 1995, a major issue is still the continued build-up of susceptibles in the various countries and the actions that need to be taken to prevent this build up. Presentations on the maintenance of the region's polio free status emphasized the importance of continuing the countries' high degree of political commitment to surveillance and vaccination activities to keep the region polio free. Today, importations represent the biggest threat to the Caribbean's polio-free status. This year's meeting also highlighted key issues on the introduction of new vaccines into national immunizations programs.

III. Conclusions and Recommendations

1. Rubella Control/Elimination Strategies

In 1995 and 1996, awareness of the damage of rubella virus was heightened as outbreaks of rubella virus were recognized in all the larger countries of the Caribbean. Congenital Rubella Syndrome cases were detected through active searches.

Rubella virus causes most of its damage to human fetus by infection of a pregnant woman during the first trimester. Adverse outcomes from congenital rubella virus infection include miscarriage, stillbirth, congenital rubella syndrome (neonatal and post-neonatal), and therapeutic abortions. The total damage from rubella is often underestimated. In many countries, CRS case surveillance is the only surveillance component, therefore, miscarriage, stillbirth, and therapeutic abortions related to rubella virus are not measured. Even CRS case surveillance does not usually accurately measure the true magnitude of CRS cases. In general, CRS cases with hearing deficit alone and mental retardation alone, which manifest only in the post-neonatal period, are not detected by a CRS case surveillance system. The number of CRS cases with post-neonatal manifestations usually equals the number of CRS cases with defects detected in the neonatal period. There is usually under-reporting of even the CRS cases with defects in the neonatal period. Two studies carried out in the United States in the 1980s, indicates that neonatal CRS cases were under-reported by a factor of five. Therefore, to arrive at the true number of neonatal and post-neonatal CRS cases in

the United States in the 1980s, one must multiply the reported number of CRS cases by ten.

Epidemiology of Rubella and CRS in the Caribbean

Data about the epidemiology of rubella and CRS cases in the Caribbean have come from four sources – Measles Elimination Surveillance Systems (MESS), CAREC notifiable diseases system, diagnostic blood specimens, and investigations of recent outbreaks and CRS cases.

The main epidemiologic points coming from the review of the data are:

- Rubella virus is circulating on an ongoing basis in the larger countries. Jamaica, Guyana, Belize, and Suriname have had laboratory-documented rubella circulation in at least 4 of the last 5 years. Trinidad (2 years) and Barbados (3 years) have also had laboratory-documented rubella in several of the last 5 years.
- The magnitude of rubella circulation in the large countries seems to be significant. In Jamaica, Trinidad and Tobago, Guyana, and Belize, the percentage of suspected measles cases positive for rubella range from 38% to 60%.
- Although only half of the countries (11/22) had laboratory-documented rubella circulation in the past four years (1992-1996) (see Figure 1), all countries with a pool susceptible of adults or children are at risk of an outbreak. Several smaller island countries had indications of rubella virus circulation (patients with a positive laboratory test) in the last four years -- Cayman, St. Christopher and Nevis, Dominica, and St. Lucia.
- As awareness of CRS increases, cases are increasingly being detected. So far, congenital rubella syndrome cases have been detected in Jamaica (6 cases), Barbados (2 cases), and Trinidad and Tobago (1 case). In one CAREC country, 15 pregnant women have had laboratory-confirmed rubella infection.
- During the 1996 Barbados outbreak, 52% of the 229 reported rubella cases were among women between the ages of 15-44 years.

Rubella/CRS Surveillance

CAREC has proposed a set of case definitions for CRS, a CRS case reporting form, and guidelines for CRS surveillance. These have been distributed to member countries for comments and feedback. The guidelines include the creation of a registry of pregnant women with laboratory-confirmed rubella, whose infants need to be followed through the neonatal and postnatal period, to detect possible defects due to rubella virus. CRS should be made a notifiable disease. In countries where therapeutic abortions are available, monitoring of therapeutic abortions related to rubella virus infection may be a sensitive indicator of congenital rubella infection.

Rubella/CRS Prevention

In many countries, current immunization strategies for pre-pubertal girls, CBA women, and postpartum women have been ad hoc and inconsistent. Infant immunization is not be expected to have a major impact on CRS cases for 20 years. Most countries in the Caribbean have a pool of susceptibles, which will sustain rubella outbreaks if rubella virus is re-introduced. To attain rapid control or elimination of rubella and CRS cases, these large pools of susceptibles must be eliminated. In most countries, the most cost-effective means to achieve this is through mass campaigns.

Twelve of 21 countries used MMR among 1-14 year old children during the 1991 *catch-up* measles elimination campaign (see Figure 2), which means that most of the persons <20 years old are now immune. Ten countries used MMR in the 1996 *follow-up* campaign. All of the countries are now using MMR vaccine in infant immunization schedules.

Rubella/CRS Cost- Benefit Analysis

Preliminary data generated by the costing exercise performed by each country's delegation indicate that mass campaigns with rubella-containing vaccine to eliminate rubella virus and CRS would be highly cost-effective in most Caribbean countries.

For the English-speaking Caribbean countries and Suriname, it was estimated that even with the present strategies now in place in some of the countries, a total of 1500 cases of CRS would occur over the next 15 years, during which time those countries already using rubella containing vaccine will see limited impact from their existing strategies. Expenditures with rehabilitation and care of these cases, without counting the human suffering, is estimated at over US\$60,000,000 for the same period of time.

The implementation of a strategy that would interrupt rubella transmission, hence eliminate the possibility of occurrence of CRS over this period, would entail vaccination of all the population (male and female) between 1-30 years of age (with variations among countries to take into account their present strategy, including whether MMR was used in 1-14 years in the 1991 *catch-up* campaign) would cost an approximate US\$4,500,000. The cost-effectiveness of the mass campaigns is estimated to average US\$2,900 per case of CRS prevented. These estimations assume the use of MMR vaccine for children 1-14 years old and rubella vaccine for the population 15-30 years of age.

Countries are therefore urged to conduct a comprehensive review of their current rubella/CRS control strategies, to determine the feasibility of an initiative to stop rubella transmission in the English-speaking Caribbean. In addition, they are encouraged to improve surveillance activities for CRS.

Specific activities should include:

- In 1997, all countries should discuss eliminating pools of rubella-susceptible persons using mass campaigns or other effective strategies with senior MOH officials and political leaders.
- For countries with the political commitment due to recent outbreaks of rubella and CRS cases, mass campaigns to eliminate rubella virus and CRS cases are encouraged.
- In 1997, CRS case surveillance along with a registry of pregnant women with laboratory-confirmed rubella should be introduced. Where feasible, considerations should be given to monitoring therapeutic abortions related to rubella infection.

2. Measles Elimination

2.1 Measles Elimination Program in the English-speaking Caribbean & Suriname

The clear message of measles surveillance in the English-speaking Caribbean & Suriname for the period 1992-1996 is that there has been no laboratory confirmed indigenous measles transmission despite intensive surveillance and the investigation of 1453 suspected measles cases. The last two confirmed cases were reported from Barbados in August of 1991. Over 270 cases have been discarded as rubella, 58 have been discarded as dengue, and 1125 have been discarded with other diagnosis (see Figure 3).

A key component of the region's surveillance system is its sensitivity to detect and investigate all suspected measles cases, including those of rubella and dengue.

Virtually all countries in the sub-region have already implemented the first PAHO strategies for measles elimination. So far *follow-up* campaigns have been carried out in 14 countries and will continue in others. Five countries have not implemented the *follow-up* campaign as yet: Suriname is awaiting for vaccines and plans to conduct a *follow-up* campaign in 1997; Trinidad & Tobago has decided to conduct a *mop-up* campaign for low coverage and hard-to-reach areas, and they are evaluating the need for the *follow-up* campaign. Bermuda, Bahamas and Cayman Islands are not planning a *follow-up* campaign at this time.

During 1995, 334 suspected measles cases reported from 16 CAREC member countries were investigated by CAREC's Laboratory. As in previous years, it has been observed that the highest number of suspected cases are reported between weeks 1-44. This has been followed by substantial declines between weeks 45 and 53.

Jamaica had the highest number of measles suspected cases in 1995 due to rubella epidemic. Dominica and Turks & Caicos relatively had high number of cases due to dengue epidemic.

Between the launching of the measles elimination surveillance system weekly reporting on September 28, 1991 until December 31, 1995 the surveillance had 223 weeks of reporting. Most countries exceeded the target of 80%

completeness for weekly reports, with one country achieving 100%. One country only achieved 55% completeness in reporting.

An analysis done on the quality of the cases report forms, revealed that the system was timely and sufficiently flexible. The following areas have been identified as needing improvement:

- 184 (55%) cases had no information on present or absence of conjunctivitis, coryza or cough
- 243 (73%) cases had no vaccination history
- 264 (79%) cases had no dates of the last vaccination dose given
- 253 (76%) had no patient's address.

Political Commitment

The following represents some evidence of sustained political commitment to measles elimination by the English-speaking Caribbean countries:

- The measles *catch-up* campaign has been implemented by 18 of the 19 countries
- The Measles/Polio Surveillance System has been rated as the best system in the Caribbean
- The routine vaccination programs have maintained over 80% coverage
- *Follow-up* campaigns have been implemented or are being implemented in 14 of the 19 countries
- The duration of the effort continues, even after 5 years since the *Big Bang* mass vaccination campaign
- Governments are covering over 80% of the regular costs
- Commitment is deeply entrenched at various levels - politicians, chief medical officers, program managers, public health staff, laboratory staff, among others .

Challenges

Importation is the only way measles can re-emerge in the countries. Twelve million tourists visit the Caribbean annually, and Caribbean people travel a lot as well. Other challenges for the future include the incorporation of the private sector

(4,000 private physicians) into the reporting system and maintaining a high level of vigilance for imported cases.

In the absence of measles cases, key indicators of population susceptibility are vaccine coverage and the build-up of susceptibles, who were either not vaccinated or who have experienced primary vaccine failure. One of the measles elimination strategies, the target of 95% annual measles vaccine coverage had been set. However, over the period 1992-1995, the level of measles vaccine coverage ranged from 75-86%.

There is considerable concern that if *follow-up* campaigns are not conducted, particularly in Trinidad and Tobago, there will be a very high risk of an outbreak that could threaten the other countries as well. It is therefore recommended that a review of the feasibility of a *follow-up* campaign in that country be undertaken as soon as possible.

2.2 Measles elimination in Canada and the United States

a. Canada

During 1995, the number of measles cases reported increased significantly in Canada, mainly due to an outbreak in Ontario. This outbreak underlined the fact that only one dose of measles vaccine, even with almost 100% coverage, could not eliminate measles in Canada.

An extraordinary meeting of the National Advisory Committee on Immunization (NACI) was held in August 1995, during which the routine administration of a second dose of MMR was recommended. Previously this recommendation had included only a consideration for a two dose schedule. Following this NACI meeting, there was broad support nationally and provincially for this recommendation as part of a measles elimination goal. In December 1995, measles became the first disease for which there was endorsement of a national goal by Deputy Ministers of Health, Federal/Provincial/Territorial.

1996 has seen significant activity in Canada with respect to measles elimination:

- Six Provinces/Territories have completed *catch-up* campaigns for all school children and for pre-school children in provinces where the second measles vaccine dose will be given at 18 months, with limited catch-up in two provinces.
- Over 83% of five million school children have been involved in the *catch-up* campaign.
- Measles vaccine was used in four provinces and measles/rubella vaccine in four.

With respect to the routine schedule:

- 11 out of 12 provinces/territories have implemented a routine two dose schedule for immunization representing 97% of the birth cohort.

Following these campaigns, the incidence of measles in Canada, which had shown an increase in 1995 for February and March, dropped off sharply and the number of cases reported through the end of October 1996, now stands at 310 with only 23 cases reported since July 1996. There have been eleven reported cases so far this year.

A Working Group on Measles Elimination has been formed to develop the tools for determining where Canada stands with respect to measles elimination, and to develop and propose implementation of a national surveillance protocol for Canada. This Working Group met for the first time in October 1996.

b. *United States*

In 1993, the United States announced the Childhood Immunization Initiative, which included the goal of measles elimination by the end of 1996, and a vaccination coverage goal for measles- mumps-rubella (MMR) vaccine of 90% for preschool-age children. The four part strategy that is being implemented to achieve measles elimination in the United States includes the following:

1. reach a high level of population immunity through a 2-dose MMR vaccination schedule
2. enhance surveillance for measles
3. respond rapidly to measles outbreaks
4. work to improve the global control of measles.

Vaccination coverage with MMR vaccine in two year old children is currently at 89%, the highest level ever reached. Notably, first dose coverage increases to greater than 95% in children entering school because of state school entry requirements. Coverage with the second dose among school children is approximately 65%, and will increase as additional states enact school entry requirements for a second dose of MMR. Surveillance indicators have been agreed upon, and will be reported to states quarterly. These indicators include measures of completeness of reporting, timeliness of investigation, proportion of cases laboratory confirmed, number of suspected cases investigated and laboratory tested, proportion of chains of transmission with an identified source, and proportion of chains of transmission with a specimen submitted for virus isolation.

As a result of these efforts, measles incidence in the United States is at record low levels. Before 1992, the lowest number of reported cases in a single year had been 1,497 in 1983. Since then, 312 cases were reported in 1993, 963 in 1994, 309 in 1995, and 450 cases up to October 24, 1996. Molecular epidemiologic studies and case surveillance data suggest that measles transmission was interrupted in late 1993. Furthermore, periods of 4 to 6 weeks without indigenous cases occurred in late 1995 and in February 1996. Imported cases continue to constitute an ongoing threat to measles elimination efforts and have constituted greater than 5% of cases since 1992. No imported cases from the Caribbean to the United States have occurred since 1994. Only one imported case from a country in Latin America was reported in 1995, and a subsequent investigation in that country revealed no evidence of circulating measles virus. These results indicate a false positive laboratory result or possibly transmission from another tourist to the person returning to the United States. The absence of imported measles from countries of the Americas is especially remarkable considering that in 1990 more than 200 imported cases from the countries of Caribbean and Latin America were reported.

Besides imported cases from Europe and Asia, the major challenges to measles elimination in the United States include the continuing existence of pockets of underimmunized children in large urban areas. Special efforts are being designed to assure the timely vaccination of these children.. Ultimately, improving measles control in the developed countries of Europe and Asia will be essential to further reduce the incidence of measles in the United States.

3. Polio Eradication

The International Commission for the Certification of Poliomyelitis Eradication declared the Americas to be polio-free in September 1994. Although great progress has been made towards the global eradication of wild poliovirus, circulation continues in various parts of Africa and Asia. Until global eradication is achieved, the English-speaking Caribbean and the remainder of the Regions of the Americas will remain at risk for importations of wild poliovirus.

The latest importation of wild poliovirus occurred in March of this year in Ontario, Canada, and represents the fourth instance of wild poliovirus importation into the Western Hemisphere. The importation, a 15-month old boy, had recently returned from a 3-month stay in India. The child had received three doses of an enhanced version of the inactivated polio vaccine (IPV). The latter also presents an opportunity to emphasize the importance of using the oral polio vaccine (OPV) in all countries of the English-speaking Caribbean until global polio eradication is achieved.

There is concern with the current deterioration of the acute flaccid paralysis (AFP) surveillance indicators in the region. To prevent future breakdowns, countries are urged to continue looking at measures that ensure the effective implementation of their surveillance systems.

During 1996, seven countries reported 18 AFP cases (Jamaica, Trinidad & Tobago, Guyana, Suriname, Barbados, Bahamas and Antigua). Bahamas and Antigua met all the AFP Surveillance Indicators, Guyana met three indicators, Trinidad & Tobago and Barbados met two indicators and Jamaica met one indicator.

Twelve countries did not report any AFP cases. Eighteen out of 19 countries met the indicator of > 80% weekly reporting units. Belize did not report any AFP cases.

There is a need to maintain surveillance until global polio eradication is achieved. Re-sensitization of clinicians and public health staff about the importance of prompt investigation, reporting and active surveillance is warranted at this point.

It is therefore critical that:

- a. Immunization levels of at least 80% must be maintained in every district or parish of every country with OPV.
- b. Weekly negative reporting must be maintained from all reporting sites.
- c. The timely and complete investigation of acute flaccid paralysis (AFP) in children under 15 years of age must be continued.
- d. **One** adequate stool specimen per AFP cases is now considered sufficient for virological analysis. To be adequate, the stool sample must be:
 - collected within 15 days of paralysis onset;
 - a quantity of about one "thumb size".

During transport, the sample must be kept refrigerated at all times (see field guide for additional details).

- e. It is **not** necessary to routinely collect stool samples from contacts of the cases. If for any reason (e.g. death or loss to follow-up), adequate stool samples are unable to be collected from AFP cases or the epidemiological investigation raises strong suspicion of polio transmission, then efforts should be made to obtain contact stool specimens.

4. Immunization Coverage

Immunization coverage was maintained at previous high levels (see Figure 4). However, it was reported by some countries that coverage had either dropped or remained stationary under the 90% mark. When coverage is less than 95%, this indicates that there are considerable numbers of unvaccinated children. Measures should be taken to trace these children and ensure that they receive the needed vaccine.

5. Introduction of New Vaccines

National program managers now face a bewildering array of new vaccines, either already available or shortly to be available. These vaccines include new multivalent combination products such as DTP-Hib, combinations which include hepatitis B vaccine, and DTP vaccines where the pertussis component is based on acellular pertussis vaccine. In a number of countries, hepatitis A vaccines are licensed, as is varicella vaccine. In the near future, there are likely to be safe and effective vaccines available to prevent meningococcal C (and A) infections in young children, as well as conjugate pneumococcal vaccines. In the longer term, it can be expected that vaccines against rotavirus infection, herpes viruses, respiratory syncytial virus, and even vaccines to prevent malignant and chronic diseases will become available.

The introduction of new vaccines into a national immunization program should not simply reflect their availability, but should follow a careful investigation of their appropriateness to that particular epidemiology and whenever possible, evidence that their introduction into routine use would be a cost-effective use of resources. Once that case has been made and resources identified, an introduction/implementation plan needs to be developed. Topics that will need to be considered include: vaccine studies, disease surveillance, supply arrangements, immunization scheduling, coverage measurements, communications strategies, professional training materials and surveillance for impact assessment. The implementation of new vaccines is a complex multi-faceted task that requires the coordination of policy makers and program managers, public health experts, advertising and marketing experts, researchers, manufacturers, regulators, and parents and health professionals. The extensive experience in the Caribbean with implementation of immunization campaigns will be invaluable in the introduction of new vaccines into routine use.

IV. Financial Analysis of 1997 National Work Plans

All countries have presented and discussed their 1997 National Work Plans, outlining all the technical components and activities, including the cost per activity and area of action. The total cost for the EPI in the English-speaking Caribbean and Suriname for 1997 is in the order of US\$ 9.3 million, 91% of which will come from national budgets. The following is the distribution of these funds by source of funding, as requested by the national representatives. It may be

noted that funds from the external agencies were not committed as of the meeting, this will require further negotiations at the country level.

National funds	US\$ 8,291,970
CPHA (bilateral)	US\$ 27,600
PAHO	US\$ 406,170
UNICEF	US\$ 452,830
Rotary International	US\$ 21,500
Other	US\$ 96,000
TOTAL	US\$ 9,296.070

The funds from the external agencies are being requested for the following areas of action:

Biological and Logistics	US\$ 1,431,660
Cold Chain	US\$ 416,250
Training	US\$ 241,250
Social Mobilization	US\$ 250,570
Operating Costs	US\$ 6,227,000
Supervision	US\$ 94,300
Surveillance	US\$ 264,990
Research	US\$ 157,400
Evaluation	US\$ 212,650
TOTAL	US\$ 9,296.070

V. Future Meeting Plans

The next meeting will be held in November, 1997.