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Pan American Sanitary Bureau, Regional office of the
WORLD HEALTH ORGANIZATION

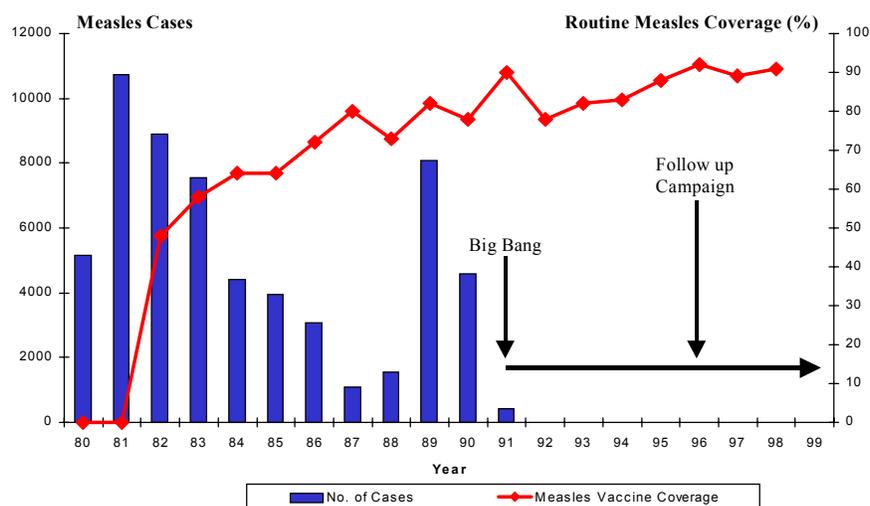
DIVISION OF VACCINES AND IMMUNIZATION
(HVP)



SIXTEENTH CARIBBEAN EPI MANAGERS' MEETING

Confirmed Measles Cases

English Speaking Caribbean & Suriname 1980-1999*#



* Cases reported through December 1999
1 Confirmed case was detected in 1998

FINAL REPORT
Frigate Bay, St. Kitts
5 -7 January 2000

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I. Introduction

The Sixteenth Meeting of the Caribbean EPI Managers was held in Frigate Bay, St. Kitts from 5-7 January 2000. Participants at the Meeting were welcomed by Mr. Douglas Wattley, Permanent Secretary Health & Women Affairs. Dr. Earl Austin Martin, the Minister Health of St. Kitts, officially opened the meeting and delivered the keynote address. His Excellency Sir Cuthbert Sebastian, Governor General of St. Kitts and Nevis, and Dr. G.A. Dwyer Astaphan, Minister of Tourism were present for the opening. Dr. Barry Wint, attended the meeting on behalf of the Caribbean Community (CARICOM). Dr. Peter Figueroa, Chief Medical Officer, Ministry of Health, Jamaica, and member of the Technical Advisory Group (TAG) on vaccines and immunization of the Pan American Health Organization (PAHO) chaired the meeting, and Dr. Ciro A. de Quadros, Director of PAHO's Division of Vaccines and Immunization (HVP), served as Secretary.

The Meeting brought together over 70 health officials from 20 countries of the English-speaking Caribbean, St. Maarten, Curacao, Aruba, Suriname, and the French Departments of Guadeloupe and Martinique and French Guyana. Also present were representatives from the Laboratory Center for Disease Control (LCDC), Ottawa, Canada, the United States' Centers for Disease Control and Prevention (CDC), Atlanta, the United States Agency for International Development (USAID), the Department of Health of the United Kingdom, the Los Angeles Public Health Department, the PAHO's Caribbean Epidemiology Center (CAREC), the Children's Christian Fund (CCF), as well as technical staff from PAHO's Divisions of Vaccines and Immunization (HVP) and of Health Promotion and Protection.

II. Objectives of the Meeting

In addition to EPI program reviews and development of annual work plans for the year 2000 by each country, the main objectives of the Meeting included:

- to determine the status of measles eradication in each country,
- establish guidelines for measles virus isolation
- review surveillance of AFP,
- review progress of eradication of rubella/CRS, including status of Rubella campaigns,
- report on status and improvements of surveillance of vaccine safety, and
- the status of vaccination and surveillance of yellow fever in relevant countries

III. Conclusions and Recommendations

Participants were unanimous in referring to the process of health care reform and decentralization now under way in the region, and the impact that it has had in the immunization programs in many countries. Although no hard data was presented, it was referred several times that the stagnation of immunization coverage and of the surveillance indicators may be in part due to these processes. In this respect, it was recommended that in the next meeting this issue be evaluated with presentation of data from different countries. In the meantime, it was recommended that the CARICOM Secretariat send a note to member governments, calling the attention to the fact that immunization programs will have to be sustained within this new environment of reforms and decentralization.

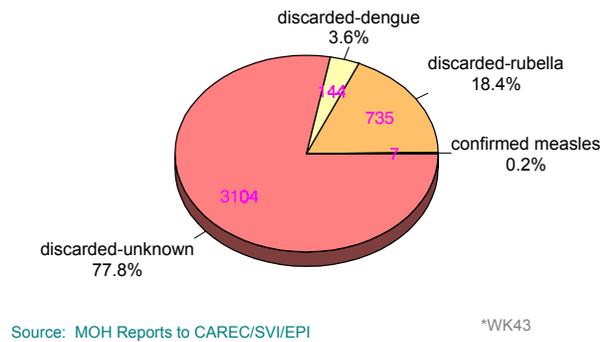
1. Measles Eradication

1.1 English-speaking Caribbean & Suriname

The Measles Elimination Surveillance System was implemented in the countries of the Caribbean Community in 1991. Since then, the number of reporting sites in countries increased from 468 to 643 as of Week 43 in 1999. Ninety-nine percent of these sites report weekly.

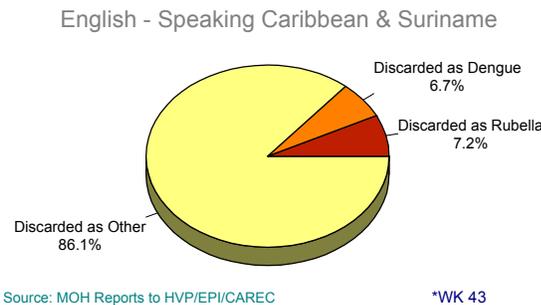
A total of 3,990 suspected measles cases were reported by countries during the period 1991 to 1999 (as of week 43). During this time period, there were 7 laboratory confirmed cases of measles, all imported from abroad, 735 cases of rubella, and 144 cases of dengue. 3,104 cases were discarded. See Figure 1.

Figure 1.
CLASSIFICATION OF SUSPECTED MEASLES CASES
1991-1999*
 ENGLISH SPEAKING CARIBBEAN AND SURINAME



In 1999 as of week 43 there have been 249 cases reported. 86% were discarded as unknown (neither measles nor rubella nor dengue). Confirmed rubella comprised 7% of the cases with another 7% confirmed as dengue. There were no laboratory cases of confirmed measles in 1999. See figure 2.

Figure 2.
Classification of Suspected Measles Cases
1999*

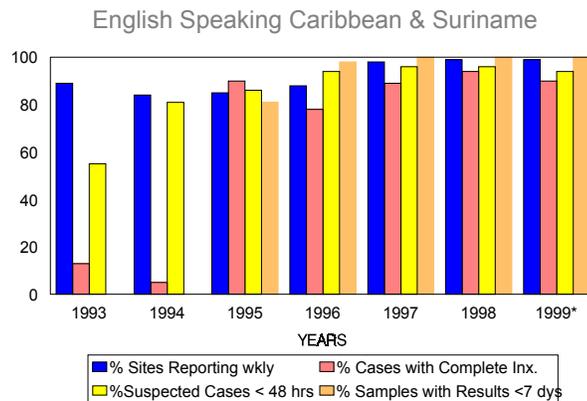


The age distribution of the suspected measles/rubella cases revealed that 75% were less than 15 years of age, 7% were in the age group of 15-19 years, and 16% were over 20 years of age.

Timeliness in transportation of specimens still remains problematic. St. Lucia was the only country with 100% of specimens received within five days after being taken. British Virgin Islands and Trinidad & Tobago had over 40% of specimens received in less than 5 days.

There continues to be an overall improvement in the surveillance indicators (See figure 3). At present, 99% of sites report weekly and 91% have complete investigations and collected adequate blood specimens. 94% of cases in 1999 were investigated within 48 hours and 63% of required forms were fully completed in 1999, compared to 44% in 1998.

Figure 3.
STATUS OF INDICATORS OF MEASLES SURVEILLANCE
1993-1999*



* WK 43

Information on vaccine history was present on 41% of forms, but 19% of cases would have been ineligible for vaccination since they were children less than one year of age.

Measles Serology and Virus Isolation

It should be emphasized that blood samples should be obtained on all suspected cases. In addition, for individuals for whom measles is highly suspected, the specimen of choice for measles virus isolation is a urine sample. This should be collected within 5 days of rash onset. The specimen should be kept cool at 4°C and sent to the laboratory as soon as possible after collection.

CONCLUSIONS AND RECOMMENDATIONS

- **Because of accumulation of susceptible children, most countries are now due to implement follow up campaigns targeting all children one to four years old. These campaigns will be essential to ensure that importations will not result in re-establishment of transmission.**
- **Regular training and updating of health workers continue to be essential for developing and maintaining an effective surveillance system.**
- **Efforts need to be made to expand existing surveillance systems to include most, if not all, private health providers.**

- **Periodic audits of all aspects of the surveillance system (internal/external) should be conducted.**
- **Programs need to ensure that 100% of suspected cases have blood specimens taken, and arrive at CAREC in a timely fashion.**
- **Surveillance forms for suspected cases need to be filled in as completely as possible.**
- **All countries need to maintain and/or increase MMR coverage in all countries to 95-100%.**

1.2 Latin America

In 1996, a record low of 2,109 confirmed measles cases was reported in the Americas. However in 1997, over 53,000 cases occurred with 42,000 cases being in the Sao Paulo State, with spread to other States in Brazil, and to Argentina, Bolivia, Paraguay, Chile, Peru, Costa Rica, and the United States. In the Sao Paulo outbreak over 50% of cases occurred in unvaccinated young adults. In 1998, 14,554 cases of measles were reported with 71% of cases in Argentina, 20% in Brazil, and 7% in Bolivia. In 1999, 2,826 cases of confirmed measles occurred with 57% in Bolivia, 25% in Brazil and 9% in Argentina. In La Paz, Bolivia, most of the cases were in unvaccinated preschool children. Indigenous transmission is now believed to be confined to only four countries: Argentina, Bolivia, Brazil, and Dominican Republic. Intensive vaccination activities coupled with strengthening of surveillance in these countries are now underway and it is hoped that transmission will be interrupted during the course of this year.

1.3 United States

In the United States, as of October 16, 1999 the number of reported measles cases were 73 (38 were determined to be imported or importation-associated). In 1998, 100 cases were reported (71 of which were determined to be imported or importation-associated).

Epidemiologic evidence now suggests that measles is no longer an indigenous disease in the U.S. This is supported by the following: 1) the number of reported cases are most likely too low to support ongoing transmission; 2) the majority of reported cases are import-associated; 3) no indigenous virus strain has been identified since 1992; 4) MMR immunization coverage for one dose is over 90% for 2 year-olds; and 5) hospital discharge data, and mortality data supplement routine surveillance for measles.

The U.S. uses four main strategies for achieving and sustaining regional elimination: 1) Achieving high levels of immunity through delivering the first dose on time, and by increasing the second dose coverage in school children, and vaccinating high risk adults; 2) to enhance surveillance, including virologic surveillance; 3) to respond rapidly to outbreaks; and 4) to work to improve global control.

1.4 Canada

In 1995 Canada introduced an enhanced surveillance system for measles. In 1998, 12 laboratory-confirmed cases of measles were reported, the lowest annual number ever recorded in Canada. This compared to 581 cases reported in 1997. Five of the 12 cases had exposure histories outside Canada. In 1999, 28 confirmed cases were reported (provisional), 8 which had exposure histories outside of Canada. The index case of the first outbreak in 1999 was an unimmunized visitor from the Netherlands. Three secondary cases occurred in unimmunized individuals

belonging to a community with known religious objections to immunization. Subsequently, Alberta reported an outbreak of measles with a total of 17 cases all involving persons unimmunized on religious grounds. Measles elimination efforts are supported by the enhanced measles surveillance system, active epidemiological follow-up of cases and contacts, and laboratory support (diagnosis and molecular characterization of virus isolates). Current experience suggest that short chains of indigenous transmission can occur in communities and the outcome depends upon the size of susceptibles and when they are exposed. Epidemiologic data suggest measles is no longer an indigenous disease in Canada.

2. Rubella and Congenital Rubella Syndrome Eradication

2.1 Goal to eradicate Rubella and Congenital Rubella Syndrome

The Council for Human and Social Development of the Caribbean Community (CARICOM) resolved on April 21, 1998 that every effort should be made to eradicate Rubella and prevent the occurrence of new cases of Congenital Rubella Syndrome (CRS) in the Caribbean Community by the end of the year 2000.

Rubella Mass Campaigns

Since the resolution was passed, Rubella mass campaigns have been completed in 5 countries to date, while 9 are presently conducting their campaign. The age ranges of the target population varied from 13-29 years in Jamaica to 19-45 years in Trinidad and Tobago. The vaccination coverage of the target population varied as well, with coverage in Jamaica being 51% to over 70% in Guyana.

2.2 Integrated measles/rubella surveillance¹

A combined Measles/Rubella surveillance system was introduced to the countries in December 1998. Over 50% of countries have started using the reporting forms and over 90% of countries have already conducted training and discussed the methodology with their health staff. For 1999 (as of week 43), 249 suspected cases were reported with ages ranging from 4 weeks to 79 years of age. Of the 249 suspected cases in 1999, 7% were confirmed as rubella, 7% confirmed as

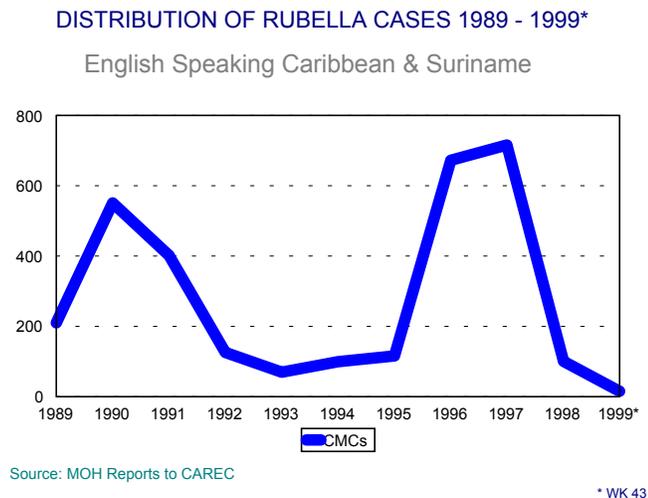
The suspected measles cases were reported from fifteen countries and nine of the 15 confirmed rubella cases were from Belize. Two other countries had confirmed rubella cases – Suriname had five cases and Jamaica had two (2) cases.

Data from Rubella/CRS surveillance

There was no major rubella activity this year. See figure 4. Fifteen cases have been laboratory confirmed with 9 of the cases occurring in Belize, 5 in Suriname, and 1 in Jamaica. Six (40%) cases were less than 15 years of age and 73% of the cases were males.

¹ Report of the PAHO Working Group for Developing Guidelines for Rubella and CRS Surveillance in the English-speaking Caribbean. CAREC, Port-of-Spain, 4-5 November 1998. Special Program for Vaccines and Immunization (SVI), PAHO.

Figure 4



CONCLUSIONS AND RECOMMENDATIONS

It must be emphasized that of the 2.2 million individuals targeted for vaccination in the various countries, only about 50%, or 1.1 million, have received rubella containing vaccine so far. Therefore, extraordinary efforts will have to be implemented if the English speaking Caribbean is to meet the target set by CARICOM.

These extraordinary efforts are needed to ensure that:

- All countries of the English-speaking Caribbean complete the immunization campaigns directed at the target population groups. CARICOM Secretariat should communicate to the Governments of the various countries on status of initiative and actions required to achieve the goal, based on the work plans prepared by each country during this meeting.
- CRS surveillance is properly implemented, using standardized case definitions and case investigation forms.
- 100% of suspected measles/rubella and CRS cases receive a complete epidemiological investigation and have an appropriate blood specimen collected and/or urine sample collected as appropriate and sent to CAREC in a timely fashion.
- CRS surveillance should be focused on identifying new or “incident” cases, (i.e. CRS occurring in infants less than one year of age).
- Laboratory testing of rubella infection via rubella IgM testing is performed on every sample.
- The private sector be a full partner in all the activities described above.

2.3 Rubella Elimination in the United States

In the United States, rubella and CRS have been at record low levels since the mid 1990's. With lower incidence rates, the epidemiology of rubella has changed significantly. Once a childhood disease, the majority of the rubella cases now occur among persons aged 15 years and

older. Since 1996, a majority of the cases have occurred among Hispanics who were born outside the United States. The epidemiology of the CRS cases is similar to that of rubella cases occurring in the U.S, with most CRS cases having occurred to Hispanic mothers. Efforts have been made to improve ascertainment of infants with congenital rubella infection by increasing sensitivity of the surveillance system with emphasis placed on detecting infants with single defects. (e.g. hearing impairment). Molecular typing has led to improved geographic mapping of the rubella virus in the U.S. Since 1990, there have been two rubella virus sequences identified as circulating in the United States.

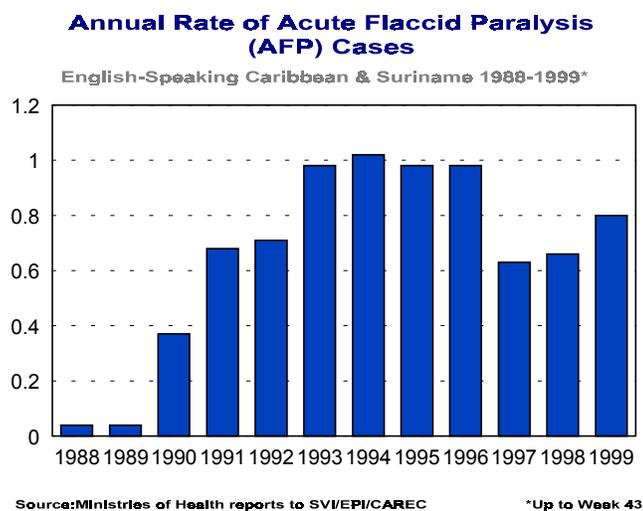
3. Polio Eradication

The last case of paralytic poliomyelitis was notified in the region of the Americas in 1991 while the English-speaking Caribbean and Suriname recorded their last case in 1982. The surveillance system for Acute Flaccid Paralysis (AFP) has recorded 105 cases between the years of 1995 and 1999, as of week 43 (Figure 5). Following complete epidemiological and laboratory investigation all cases have been discarded.

CONCLUSIONS AND RECOMMENDATIONS

- **Globally polio remains a problem in both sub-sahara Africa and in the Indian sub-continent. Thus, importation remains a real possibility.**
- **Until global eradication is achieved. It is important to maintain a high level of surveillance activities for AFP, including periodic evaluations.**

Figure 5.



4. Immunization Coverage

The immunization program continues to be one of the most successful programs in the region. This is exemplified by the average high coverage rates in past years. In 1999, the coverage

for all 19 countries were – DPT 88%, OPV 88%, MMR 88%, and BCG 89%. See figure 6. The infant vaccinations in the countries continue to be given by the public health sector through their network of clinics. In most of the countries the vaccines used in the private sector are provided by the public sector source.

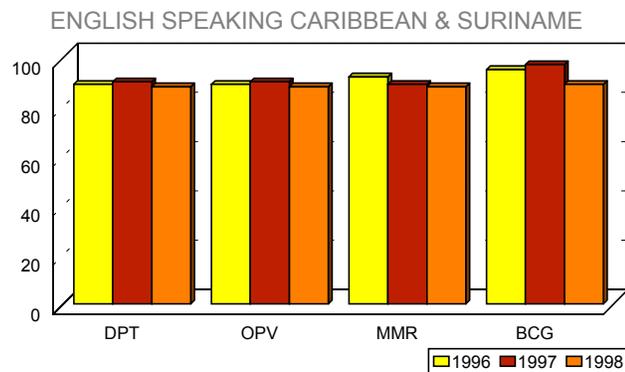
Countries such as Suriname, Grenada and Guyana have increased their coverage rates, however those for Jamaica has decreased. The coverage figures for countries ranged from 82% to 100%. Five countries still have rates between 80% and 90%. The immunization coverage ranged from 85% to 100% for DPT and that for MMR being 82% to 100%.

Most of the countries had adequate supplies of vaccines, syringes and needles in 1999. Over 90% of countries have been purchasing their public sector vaccines through the PAHO/EPI Revolving Fund. This fund is also the source of some of the vaccines used by many of the practitioners in the private sector.

The supply of MMR vaccine was problematic for countries during this year. However, countries willingly shared vaccines in order to minimize the interruption of the program within other countries.

Figure 6.

IMMUNIZATION COVERAGE (%) FOR SELECTED ANTIGENS 1996-1998



Source: MOH Reports toHVP/ EPI/CAREC

CONCLUSIONS AND RECOMMENDATIONS

When the vaccination coverage of the more populated countries are reviewed according to their health regions or districts, despite country coverage of about 90% there still remain pockets of low coverage occurring in some districts/regions.

- **Special efforts have to be made and strategies implemented to increase coverage in these hard to reach areas and/or populations.**
- **Countries such as Jamaica and Belize will need to ensure that over 90% of the densely populated districts/regions have coverage greater than 90%.**

5. Introduction of Haemophilus Influenzae type B and Hepatitis B vaccines.

Introduction of Haemophilus Influenzae type B (Hib) and Hepatitis B vaccines in the infant immunization schedule in the public sector is occurring in more countries. Presently eight countries have Hib vaccine in the infant schedule, and five more proposed to introduce it in the year 2000. Seven countries have included hepatitis B vaccine in the infant schedule, and three proposed to introduce it in the year 2000. The vaccines will be administered as single antigen or as combination vaccines. Combination vaccines such as the “Pentavalent” vaccines (DPT/HepB plus Hib) have been or will be introduced in most countries’ infant immunization schedule by the end of this year 2001. See Table 1.

The surveillance system for reporting these diseases has been put in place for many of the countries. All countries are already reporting cases of Hepatitis B infection as part of the national weekly surveillance reports to CAREC. Hib infection reporting to the national level is occurring in almost all countries. These countries are reporting information on meningitis, while some have included pneumonia and septicemia. The invasive bacterial infection surveillance has been implemented in four countries – Barbados, Jamaica, St. Vincent and Trinidad and Tobago.

Table 1

STATUS OF HAEMOPHILUS INFLUENZAE TYPE B VACCINE USE CARIBBEAN, 1999

Country	Hib Vaccine Given		Remarks
	Public	Private	
ANG	Yes	N/A	Began in 1998
ANT	No	Yes	1999/2000 Proposed to begin
ARU	Yes	Yes	
BAH	Yes	Yes	Began in 1998
BAR	No	Yes	Proposed for 2000
BER	Yes	Yes	
BLZ	No	Yes	Proposed for 2001. Financial Constraint
BVI	Yes	Yes	Early 1999
CAY	Yes	Yes	
DOM	No	Yes	No Plans Yet. Financial Constraint
GUY	No	Yes	Proposed for 2000.
GRE	No	Yes	Dependent on Revolving Fund Price
JAM	No	Yes	Proposed for 2000
MON	Yes	No	Began in 1999
SCN	No	No	Proposed for 2000
STL	No	Yes	Yes, introduction is being considered
STV	No	Yes	To begin in 2000
SUR	No		Plans being made for introduction 2000
TRT	Yes	Yes	Began in 1999
TUR	Yes	Yes	Began in 1999

6. Yellow Fever

Yellow fever is enzootic in northern South America and the Islands of Trinidad of Trinidad and Tobago. In the last decade human cases have been reported in Brazil, Peru, Bolivia, Ecuador, Colombia, Venezuela and French Guyana. Although Guyana and Suriname have not reported cases both countries have all the ecological conditions to support the YF virus transmission. The widespread *Aedes aegypti* dissemination in the Region and the increasing travel communication between the enzootic and non-enzootic areas increase the risk of its re-urbanization. French Guyana, Guyana and Trinidad and Tobago already have immunization against yellow fever as part of the infant immunization schedule of the public sector.

CONCLUSIONS AND RECOMMENDATIONS

To prevent the re-emergence of YF in urban settings additional measures are recommended:

- **Suriname should introduce routine YF vaccination as part of the immunization schedule as soon as possible .**
- **All Caribbean countries in the enzootic belt, Guyana, French Guyana, and Trinidad and Tobago, should establish an active surveillance for suspected cases according to the WHO case definition and implement the surveillance of febrile icteric syndrome in sentinel sites.**
- **The countries in the enzootic area should also plan to stockpile vaccine to control outbreaks;**
- **All the other countries in the Caribbean region, outside of the enzootic area, should implement the febrile icteric syndrome surveillance**
- **All the countries should strength the *Aedes aegypti* control measures not only to prevent the re-urbanization of YF but also to prevent dengue virus outbreaks.**

7. Vaccine Safety

Although immunization has been an important public health accomplishment over the past 200 years, recently vaccination has been undergoing visible public debate. At times, immunization programs worldwide have been jeopardized by public reaction to the debate. Although vaccines are not completely effective at all times, they are one of the safest interventions in the medical armamentarium. Although there are known side effects from certain vaccines, the benefits of vaccination far outweigh the risks of the disease.

CONCLUSIONS AND RECOMMENDATIONS:

- **The National Immunization Programs of every country should establish appropriate mechanisms to:**
 - **report, investigate and analyze alleged vaccine events;**
 - **take action to correct any problems identified from the investigation;**
 - **communicate efficiently and effectively with the community, other public health practitioners, health workers and the media;**

- **educate health workers to recognize potential vaccine-related events;**
- **educate parents about the known side effects of vaccines and of the diseases they protect against.**
- **As soon as any event is alleged to be vaccine-related, the health care worker should inform parents/guardians about the safety of immunization, reassure them, and explain that coincidental events can occur.**
- **Any serious event, rumors or events occurring in clusters require(s) an investigation**
- **Until the investigation is complete, it will be impossible to determine the cause(s) of the event. The actions to be taken should be based on the conclusions of the investigation, which will have one of the following outcomes:**
 - **The event is definitely not related to vaccination.**
 - **The event is related to vaccination.**
 - **Program-related**
 - **Vaccine-related**
 - **The investigation is inconclusive**
- **Inform concerned parties of the results of the investigation. This may entail clear communication and information that may go to the parents, town, state, regulatory authorities, health authorities, professional associations, or the entire country, involving the mass media when appropriate. Report investigation results to the Pan American Health Organization for international information dissemination**

7.1 The United Kingdom Experience

In the UK, surveillance for adverse events after administration of medicinal products (including vaccines) started in the 1960's after the thalidomide incident. Doctors, dentists, pharmacists and coroners are expected to report suspected adverse reactions to the Committee on Safety of Medicines, using widely available Yellow Cards. Reports on immunizations represent around 10% of all reports, although vaccines are only 2% of all pharmaceutical products. For new drugs, all reactions should be reported; for established products, unexpected, severe or fatal reactions should be reported.

The Yellow Card system has biases towards selective reporting of expected reactions and suffers from considerable under-reporting with further bias towards the seriousness of the presumed reaction. The system, which is essentially passive, cannot allow estimates to be made of the attributable risks, only the overall risks. The scheme does allow for generation of signals for new or unexpected adverse events.

In the last few years, a new form of surveillance for adverse events has been implemented using record linkage. Here, data on specific hospital admissions by diagnosis and age can be linked with the community immunization register and hence the attributable risks of specific events can be estimated, compared with background risks for the same event. This technique, which needs sophisticated computerization of hospital activity and immunization data, and requires complex statistical analysis, provides a powerful tool for examining hypotheses that have been generated from other surveillance systems. This method has been used successfully to examine attributable risks for seizures after DTP and MMR, idiopathic thrombocytopenic purpura (ITP) after MMR, onset of autism after MMR, and risk of invasive infection after MMR.

8. Other Issues

8.1 Meningococcal C Conjugate Vaccine in the UK

During the 1990s in the United Kingdom (UK), there have been important changes in the epidemiology of meningococcal disease. The overall incidence has increased, the proportion of cases reported as septicemia rather than meningitis has increased, and there has been a significant shift to higher proportions of group C cases occurring in adolescents/young adults. Since the latter cases have higher fatality rates, the overall burden of deaths has increased. Present estimates for Group C are approximately 1530 cases annually with 150 deaths. In 1994, the Department of Health, London UK, identified meningococcal vaccine research as a priority, and extra resources were directed towards the accelerated development of Group C conjugate vaccines. In 1997 extra resources were provided to accelerate the vaccine studies. As a consequence, studies on immunogenicity and reactogenicity were completed in 1999 and the first of three candidate vaccines was licensed.

In September and October 1999, a program was implemented for immunization of all first year university/college students using the already available plain polysaccharide A+C vaccine. Estimates suggest that coverage was 70-75%. Starting in mid-November 1999 and ending in mid-December, a school-based program for young people aged 15 up to 18 was implemented using the new conjugate Group C vaccine. Early reports are of high coverage (>90%); there have been very few reports of serious adverse events.

From the beginning of December 1999, the new conjugate Group C vaccine has been provided for infants at the same time as each of their DTP/Hib doses; children aged 13 months receive one dose with their MMR immunizations. From January – March 2000 the program will be expanded to cover all other children aged under two years; those > 4 <12 months will have two doses, one dose will be given to those >12 months. From April – June 2000 the remainder of the under 5 year population will be called back for one dose. The children aged >5 <15 years will be immunized through school health services over the spring and summer of 2000. The total target population is 14 million. Heightened surveillance for meningococcal disease has already been implemented and arrangements have been made for tracking of coverage in all target age groups.

8.2 Surveillance Award

An annual Surveillance Award was established to recognize countries that have performed outstandingly in their surveillance component of the program during the previous year. The Award is based on two main criteria: on time reporting and percentage of sites reporting, and the analysis was based on data received at CAREC.

The Award consists of a certificate and the inscription of the name of the country in a plaque that will be kept by the winning country during the following year and until a new country is selected to receive the award. The Award will usually be announced during the annual Manager's Meeting.

For 1999, the countries receiving the Award were Cayman Islands, Anguilla and Belize. Participants at the 16th Caribbean EPI Managers' Meeting congratulate these for being the recipient of this recognition, extending the compliments to all their health workers for such outstanding performance.

VI. Financial Analysis of 2000 National Work Plans

All countries have presented and discussed their 2000 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 2000 is on the order of US\$ 6,584,810; 85% 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. Additionally, countries should revise carefully their operational costs for the routine delivery of immunization services, as it seems that inflation was not taken into consideration when estimating salaries of personnel, for example. Also, some countries did not include operational costs for carrying out the MMR campaign in 2000 and should review their plans accordingly.

National funds	US\$ 5,592,870
PAHO	US\$ 867,440
UNICEF	US\$ 117,500
OTHER	US\$ 7,000
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TOTAL	US\$ 6,584,810

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

Biological and Logistics	US\$ 298,000
Cold Chain	US\$ 93,000
Training	US\$ 125,400
Social Mobilization	US\$ 181,000
Operating Costs	US\$ 85,390
Supervision	US\$ 6,000
Surveillance	US\$ 63,250
Research	US\$ 128,900
Evaluation	US\$ 11,000
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TOTAL	US\$ 991,940

VII. Future Meeting Plans

The next meeting will be held in Martinique in the end of the year 2000.

PARTICIPANTS

SIXTEENTH CARIBBEAN EPI MANAGERS' MEETING

