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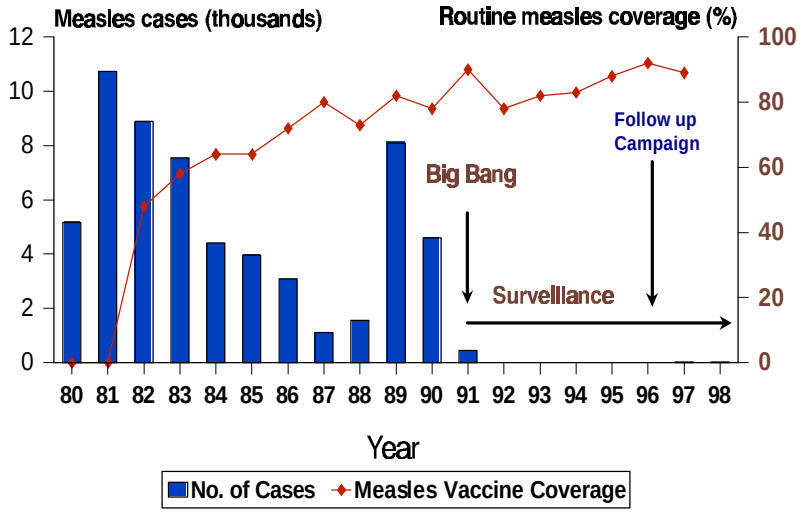
PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau, Regional office of the
WORLD HEALTH ORGANIZATION

SPECIAL PROGRAM FOR VACCINES AND IMMUNIZATION (SVI)



*cases reported through 1 December 1998
one confirmed case was detected in 1998

FIFTEENTH CARIBBEAN MANAGERS' MEETING

FINAL REPORT

Grand Anse, Grenada

16 –18 December, 1998

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I. Introduction

The Fifteenth Meeting of the Caribbean EPI Managers was held in St. Georges, Grenada from 16-18 December 1998. Participants at the Meeting were welcomed by Ms. Lana McPhail, the Permanent Secretary of the Ministry of Health of Grenada, and The Honorable Minister of Health, Dr. Claris Modeste officially opened the meeting and delivered the keynote address. Dr. Barrington Wint, Program Manager for Health, 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 Special Program for Vaccines and Immunization (SVI), served as Secretary.

The Meeting brought together over 70 health officials from 20 countries of the English-speaking Caribbean, Aruba, Bonaire, St. Maarten, Suriname, Haiti, and the French Departments of Guadeloupe and Martinique. 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 Department of Health of the United Kingdom, PAHO's Caribbean Epidemiology Center (CAREC), UNICEF, the Children's Christian Fund (CCF), as well as technical staff from PAHO's Special Program for Vaccines and Immunization (SVI).

II. Objectives of the Meeting

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

- the analysis of the status of measles eradication in each country,
- discussion regarding the implementation of the CARICOM resolution for eradication of rubella/CRS,
- status and improvement of surveillance of adverse reactions, and
- the status of vaccination and surveillance of hepatitis B and *haemophilus* infections.

III. Conclusions and Recommendations

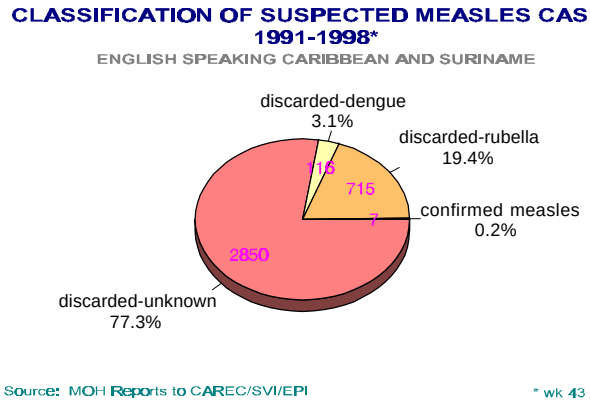
1. Measles Eradication

1.1 English-speaking Caribbean & Suriname

Since 1991, the reporting system in countries increased from 468 to 620 sites in 1998, with additional private sector facilities now reporting to national units. Ninety-nine percent of these sites reported weekly for 1998**.**

A total of 3,745 suspected measles cases were reported during the years of 1991 to 1998 (through week 43) **(Figure 1)**. 2,202 cases were discarded as unknown, 7 cases were laboratory confirmed measles, and 57 cases were classified as clinically confirmed measles, and the remainder were discarded as rubella or dengue.

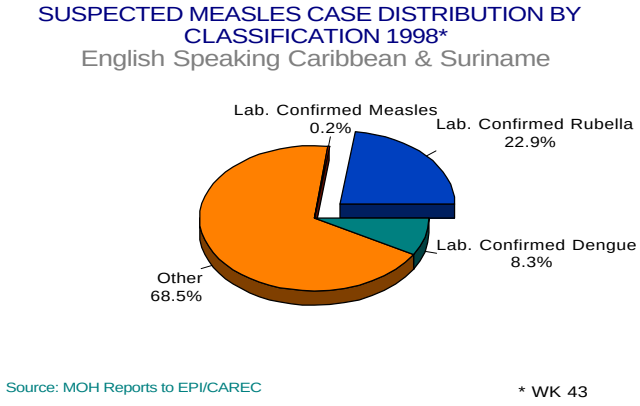
Figure 1



In 1997, 1,022 suspected measles cases were notified, while in 1998 (up to Week 43), 456 suspected cases have been notified. The decrease in number of cases reported is apparently due to the ending of the rubella epidemics in Guyana and Belize. In 1998, the age range of reported suspected cases was one month to 56 years; of which 16% of the cases were less than one year and 36% were over 15 years.

For 1998 to date, of the 456 reported suspected measles cases, 322 were discarded without specific diagnosis (that is neither measles, rubella or dengue cases). Ninety-five (23%) of cases were confirmed rubella and 38 (8%) were confirmed as Dengue **(Figure 2)**. There was one laboratory case of confirmed measles imported from Germany into Jamaica. This was an 11 year-old child visiting from Germany.

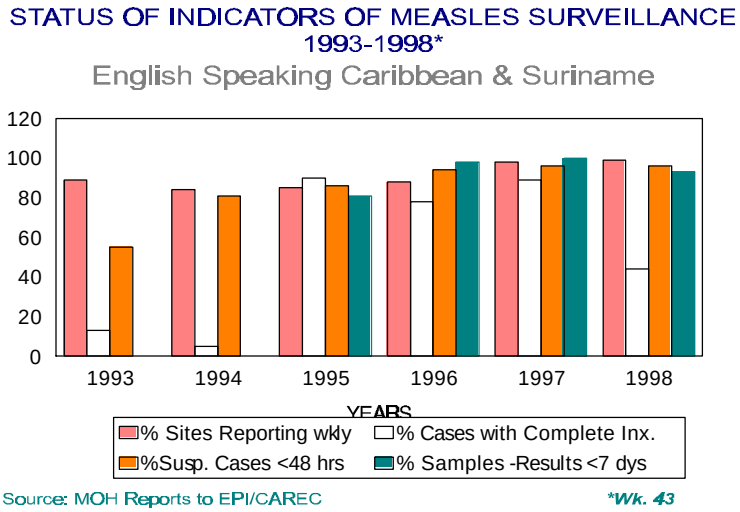
Figure 2



This child had been previously vaccinated against rubella, but not measles. The specimen was taken on day two of the rash and received at CAREC after 6 days. The result was available 5 days after receipt at the laboratory.

There have been steady improvements in the surveillance indicators between the years, 1993-1998 **(Figure 3)**. At present, 99% of sites report weekly and 91% have complete investigation with adequate blood specimen. 96% of cases in 1998 are investigated within 48 hours, and 44% of forms have been fully completed in 1998, compared to 65% in 1997.

Figure 3



- **MMR (Measles/Mumps/Rubella) or MR (Measles/Rubella) are the vaccines of choice for measles and rubella eradication.**

- **Because of accumulation of susceptibles, follow-up campaigns will still be necessary to maintain interruption of transmission, even in countries that have instituted a two-dose schedule. Countries of the English-speaking Caribbean should plan on conducting follow-up campaigns in the year 2000.**

- **Efforts need to be made to ensure that at least 95% of each birth cohort is vaccinated with measles-containing vaccine at 12 months of age.**

- **Efforts are needed to target measles vaccination to specific groups of young adults including: healthcare workers, military recruits, migrant workers from rural areas, university students, international travelers and persons employed in the tourist industry.**

1.2 Latin America

In 1996, the record low of 2,109 confirmed measles cases was reported in the Americas. In 1997, however, a large measles outbreak occurred in Sao Paulo State, Brazil with over 42,000 confirmed cases, with spread to other States in Brazil, and to Argentina, Paraguay, Chile, Peru, Costa Rica, and the United States. In Sao Paulo, over 50% of the cases occurred in unvaccinated young adults. An epidemiological investigation of this outbreak

identified several high-risk groups of young adults including: healthcare workers, military recruits, migrant workers from rural areas, university students, international travelers and persons employed in the tourist industry.

Through week 48 of 1998, a total of 9,595 confirmed measles cases have been reported in the Americas. The overwhelming majority of cases have been reported from Argentina (7,054 cases) and Brazil (2,006 cases).

1.3 Canada and the United States

Great progress has been made towards eliminating measles virus from the United States and Canada. To date in 1998, a total of 12 confirmed cases have been reported from Canada, and 86 confirmed measles cases have been reported from the United States.

Most cases reported from Canada and 40% from the USA are direct importations or related to an imported case. The United States strategy towards elimination of measles is by focusing on the timely delivery of the first dose of measles vaccine, accelerating second dose coverage of school children, vaccinating adults in high-risk settings, continually improving surveillance systems, and working with other countries to promote global measles eradication. Canada has an enhanced electronic reporting system.

1.4 United Kingdom

Following the UK 1994 measles-rubella immunization campaign, when 92% of 5-16 year old children were immunized, measles notifications fell and remained at historic low levels. New surveillance was implemented in 1994 whereby suspected cases of measles are confirmed or discarded based on detection of salivary IgM. Each year, around 4,000 notifications of suspected cases are received. Consistently 60% are tested for salivary IgM. Apart from 1997, only 1-2% of tested cases are IgM positive, representing a rate of confirmed measles of <0.1 per 100,000 population. In around one third of confirmed cases, a link with importation can be found. The remaining apparently sporadic cases have not lead to secondary cases. There have been a number of 4 -week periods when no confirmed cases have occurred, suggesting interruption of transmission in the UK, but importation from Europe especially remains problematic.

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 will 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.***

2.2 Rubella Campaigns

Rubella mass campaigns have been completed in the Bahamas and are under way in Belize, Jamaica, Montserrat, Suriname, Turks and Caicos and Trinidad and Tobago. These campaigns have target populations up to 40 years of age, both male and female. The remaining countries have planned their campaigns to commence during 1999.

2.3 Data from Rubella/CRS surveillance

The major rubella outbreak this year occurred in Suriname. The MESS database indicated that a total of 95 cases have been confirmed to date, with Suriname accounting for 89% of cases, and Belize and Guyana having 3% and 4% respectively. The three cases in Bahamas were from one to five months of age and were babies with Congenital Rubella Syndrome (CRS).

Since 1995, outbreaks of rubella have occurred in Jamaica, Barbados, Trinidad & Tobago, Guyana, Belize, Cayman Islands and Suriname, with 517 cases confirmed in the Measles Eradication Surveillance System (MESS). **(See Figure 4).** The surveillance system for congenital rubella syndrome (CRS) was introduced to countries and implemented to varying degrees in most of them. Over forty cases of CRS have been reported from 7 countries.

Figure 4

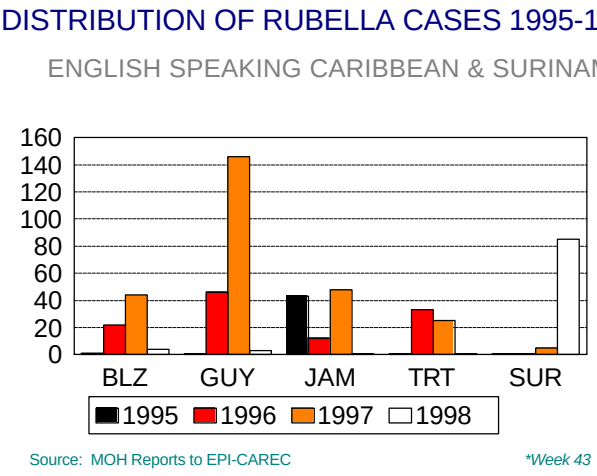
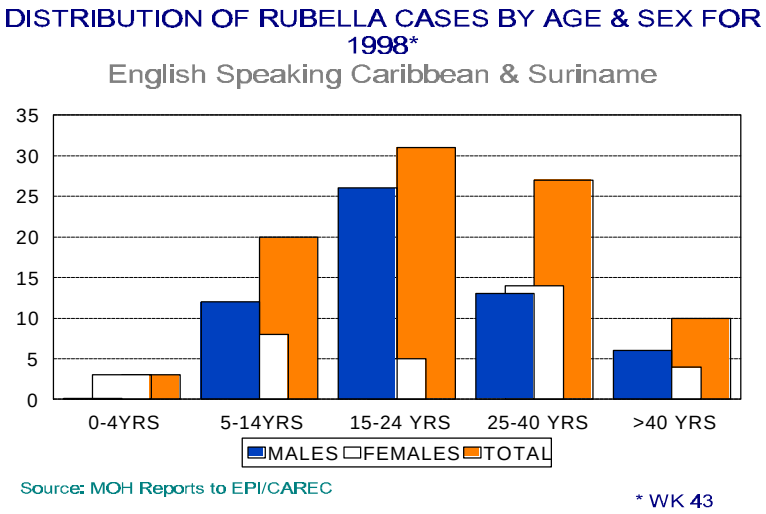


Figure 5 shows the distribution of the rubella cases according to age and sex. Majority of cases are males between the ages of 15-24 years of age.

2.4 Integrated measles/rubella surveillance[1]

The already established fever and rash surveillance system in has been providing important information concerning the epidemiology of rubella in the English-speaking Caribbean. Similar to measles surveillance, the primary goal of rubella surveillance is to detect the circulation of rubella virus in a timely manner. The purpose is not necessarily to detect every case of rubella infection, but rather to know when and where rubella virus is circulating.

Figure 5



A PAHO working group was convened November 4-5, 1998 at CAREC to develop guidelines for the rubella and CRS surveillance. The working group felt that it was not necessary to develop a new surveillance system specifically for rubella, but rather it was preferable to expand the present fever and rash illness surveillance system to provide important information about rubella. Hence, a combined surveillance system, which will be capable of detecting circulation of both measles and rubella viruses, was proposed.

Using the current measles surveillance system as a template, several modifications to the current fever and rash surveillance system were proposed. These included:

- **expansion of the case classification system to include lab-confirmed and clinically-confirmed cases of rubella**

- **addition of several data elements to the case investigation form, including information on pregnancy, and measures to assure adequate laboratory support.**

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.

2.5 Revised CRS surveillance guidelines[2]

With the purpose of creating a CRS surveillance system for the entire English-speaking Caribbean, the Working Group reviewed current CRS surveillance guidelines, which have been implemented in several countries.

The primary purpose of CRS surveillance is to:

- to document the occurrence of CRS
- to further demonstrate the public health burden of rubella
- to identify gaps in the rubella eradication strategy

Efforts were made by the working group to create a sensitive, yet relatively simple CRS surveillance system. Since the English-speaking Caribbean has targeted rubella and CRS for eradication, it was decided that CRS surveillance should be focused on identifying new or "incident" cases, (i.e. CRS occurring in infants less than one year of age).

A suspected CRS case was defined as any infant in whom a health care worker suspects CRS based on clinical presentation. Laboratory confirmation of rubella infection via rubella IgM testing is a critical component of CRS surveillance.

Progress towards rubella eradication has been made in some countries. However, with the goal to eliminate rubella from the English-speaking Caribbean, efforts are now needed to:

- **Assure the implementation of appropriate eradication activities in all countries of the English-speaking Caribbean.**

- **For countries that will be conducting mass-campaigns against rubella in 1999, consideration should be given to the use of MMR or MR vaccine . The use of MR vaccine may accrue savings of about 30% in the cost of the vaccine.**

- **Those countries that have completed or have initiated vaccination campaigns against Rubella should evaluate the activities and share information with other countries.**
- **Adapt the fever and rash surveillance system to include rubella.**

- **Implement CRS surveillance in all countries, using standardized case definitions and case investigation forms.**

2 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.

- **Assure that 100% of suspected measles/rubella and CRS cases receive a complete epidemiological investigation and have an appropriate blood specimen collected, and sent to CAREC in a timely fashion.**

- **PAHO should facilitate the sharing of information on all aspects of social communication that can strengthen the activities related to rubella elimination.**

- **The participation of the private sector is an important and critical component for the success of the rubella elimination initiative as well as those activities related to immunization and surveillance of vaccine preventable diseases.**

2.6 Rubella Elimination in the United States

The United States has established a goal to eliminate indigenous rubella and CRS by the year 2000. The incidence of rubella and CRS has decreased by more than 99% since the introduction of rubella vaccine. As of December 14, 319 cases of rubella have been reported with no confirmed cases being reported for the past 3 months. While the incidence of rubella has decreased for all age groups, the proportion of cases reported among adults make up over 75% of cases. Of the 281 confirmed cases, where travel history was known, 21 (7%) were due to international importations.

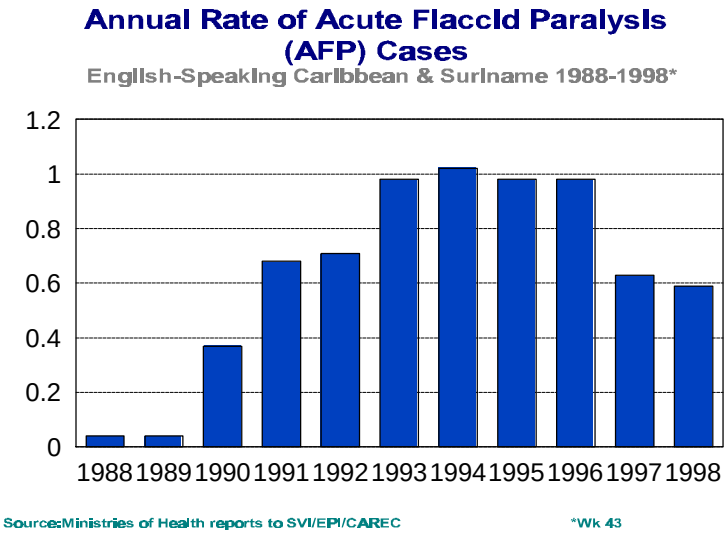
Surveillance indicators have shown progressive improvement, with 80% of requested case information reported, and more than 90% of cases laboratory confirmed in 1996. Recently, molecular epidemiology has begun to be used as a tool for rubella surveillance, which is helpful in determining the spread of each strain.

3. Polio Eradication

There have been no new cases of poliomyelitis since 1982 in the English speaking Caribbean and Suriname. The surveillance system for Acute Flaccid Paralysis (AFP) has yielded since 1995, a total of 83 AFP cases, all have been discarded as non-poliomyelitis following a complete epidemiologic and laboratory investigation.

The expected rate of AFP cases is usually one case per 100,000 population of children less than 15 years of age. Up to Week 43 in 1998, 16 AFP cases of all ages were reported with a total of 398 sites from 19 countries reporting weekly. In 1997, a total of 16 cases were reported (a rate of approximately 0.6/100,000). Of the sixteen cases notified in 1998, eight (50%) were investigated in less than 48 hours. Guyana met all four criteria, with Trinidad and Tobago meeting three criteria, while Suriname met two. It is of major concern that only 50% of cases were investigated fully within 48 hours. Stool specimens were collected from 15 of the cases. The rate of regional AFP has been below expected level for 1997 and 1998 **(Figure 6).** Jamaica has consistently reported less than the expected number of cases.

Figure 6



- **Periodic evaluation of the surveillance system for AFP is necessary to ensure that no polio case is being missed. The tenets of eradication - high vaccine coverage and a sensitive and timely surveillance system - have to be scrupulously maintained.**

- **At this time, Jamaica needs to evaluate their system for the years 1997 and 1998 to ensure that it is functioning efficiently.**

- **It is commendable that stool specimens from all reported AFP cases are sent for laboratory testing. However, the other three critical surveillance indicators are not consistently being met from countries notifying cases.**

- **In order for countries to avoid de-certification of their polio free status, it is critical to maintain a high level of surveillance activities for AFP.**

4. Immunization Coverage

In 1997, the average coverage rates for the countries of the English-speaking Caribbean and Suriname were: DPT 90%, OPV 90%, MMR 89%, and BCG 97%. Over 90% of the infant vaccinations in the countries are given by the public health sector through their network of clinics. Vaccination figures include the private sector in most countries. The average coverage of all countries has not changed significantly, but some countries such as Grenada has increased coverage, while others such as Jamaica has decreased MMR coverage by eight percent.

Five countries still have rates between 80-90%. The immunization coverage ranged from 85% to 100% for DPT and for MMR 78% to 100%. Seven of the 19 countries achieved coverage rates of 100% with DPT and TOPV, and four for MMR vaccines. There are

pockets of low coverage occurring in remote rural and dense urban areas in the larger countries, such as Belize, Jamaica, Trinidad and Tobago, and Suriname**.** Solutions to increase low coverage have been identified for implementation in most countries.

5. *Haemophilus influenzae* Type b (Hib) and Hepatitis B Vaccines

5.1 Hib

Haemophilus influenzae type b, is a major cause of serious bacterial infections in early childhood. The disease is an invasive one, and causes infection of the central nervous system (meningitis), respiratory tract, (epiglottitis, pneumonia), synovial joints, (septic arthritis) and the soft tissue (cellulitis).

The epidemiology of Hib infection and impact of vaccination are well documented in industrialized countries. The incidence in countries such as USA, and the United Kingdom prior to introduction of the vaccine were 47 and 27 per 100,000 children under five years respectively.

The Caribbean Epidemiology Centre (CAREC), the surveillance centre for the Caribbean, does not routinely collect data on this disease. However, for 13 of the 21 countries, the data is being collected or reported to national level. Meningitis data is collected in 11 countries, together with pneumonia and septicemia in 9 countries **(Table 1)**.

During the years 1992-1996, there were 73 cases clinically diagnosed as Hib infection in Trinidad and Tobago. Isolates were obtained from 40 cases, including; 11 blood cultures, 13 CSF, 8 sputa, 6 eye swabs, and 2 ear swabs. The major clinical diagnoses were septicemia (6), meningitis (14), pneumonia (8), and conjunctivitis (6). Only 29 of the 73 cases had age indicated, of which 8 of these cases were less than one year of age. Of the 14 meningitis cases, 13 had positive CSF; two of the 13 cases were less than one year of age, and 8 were between one and four years of age. Twenty-two percent of the 40 isolates were β-lactamase positive, and 3.4% chloramphenicol resistant.

In Grenada, from 1990 to 1996, there were 46 cases of meningitis, and for 90% of the cases, *H. Influenzae* type B was the causative organism. The complication rate was 10 percent.

In Jamaica, the estimated annual incidence of *H. Influenzae* invasive disease in Kingston and St. Andrew, ranged from 39 to 45 per 100,000 children less than 5 years of age. Seventy-seven percent of cases were in the less than two-year age group. Meningitis was the most common clinical diagnosis accounting for 76 percent of the cases. Sensitivity testing of *Haemophilus* isolates revealed a resistance rate of 26 percent for ampicillin and 7 percent for chloramphenicol.

Table 1

STATUS OF *HAEMOPHILIUS INFLUENZAE* TYPE B INFECTION SURVEILLANCE

COUNTRY	SURVEILLANCE SYSTEM	INFORMATION COLLECTED		
		MENINGITIS	PNEUMONIA	*SEPTICEMIA*
ANG	No			
ANT	No			
ARU	No			
BAH	Yes	Yes		
BAR	Yes	Yes	No	No
BER	Yes	Yes	Yes	Yes
BLZ	No			
BVI	Yes	Yes		
CAY	Yes	Yes	Yes	Yes
DOM	No			
GUY	Yes	Yes	Yes	Yes
GRE	Yes	Yes	No	Yes
JAM	Yes	Yes	Yes	Yes
MON	Yes	Yes	Yes	Yes
SCN	No			
STL	No			
STV	Yes	Yes	Yes	Yes
SUR	Yes	Yes	Yes	Yes
TRT	Yes			
TUR	Yes	Yes	Yes	Yes

***Source: MOH Reports to EPI-CAREC*.**

Five countries are currently giving the vaccine in the public sector as part of their infant schedule. Trinidad and Tobago is giving the vaccine to ***high-risk*** infants in the public sector. Seven countries propose to introduce the vaccine in 1999. **(Table 2).**

From **Table 2** it can be seen that although there is financial constraint for some countries, there is the political commitment for introduction of the vaccine. By the year 2000-2001, all countries in the region are expected to have Hib vaccine as a part of the public sector immunization schedule. The quantity of vaccines used in the private sector is less than 10% of the birth cohort in most CMCs.

- **Hib vaccine should be given in a three dose regimen, usually at two, four and six months of age.**

- **Development and establishment of a Hib surveillance system in the sub-region is necessary to obtain base-line data and monitor impact of vaccination on the disease. Good epidemiological understanding of the disease as quickly as possible is required.**

- **Although information is available in most countries at laboratory level, the problems of laboratory surveillance such as, use of inadequate culture media, poor quality control, and failure to use standardized techniques will result in less cases being diagnosed. Therefore, a special study that addresses laboratory inefficiencies/inadequacies is necessary in order to get comprehensive data. In the meantime, countries could be requested to send available information on Hib meningitis, pneumonia and septicemia with other surveillance data that is sent to CAREC.**

- **The target group for vaccination should be the entire birth cohort, that is, universal vaccination.**

- **At this moment, the cost of a single dose of the vaccine is US$2.18, whereas that for the combination DPT+Hepatitis B and Hib (Pentavalent vaccine) varies from US$3.00-3.50. Clearly, for those countries that are using these vaccines it is cost effective to utilize Hib and Hepatitis B in a combination with DPT, which additionally will diminish threefold the number of injections to immunize against these five diseases.**

- **The use of the "pentavalent" vaccine has implications that relate to the use of the Hepatitis B at birth and the schedules of the Hib vaccine. Therefore countries should evaluate the epidemiological situation and decide on the different possibilities for organizing the immunization schedule. PAHO should prepare a "menu" of alternatives to help countries decide on best strategy.**

Table 2

STATUS OF *HAEMOPHILUS INFLUENZAE* TYPE B VACCINE USE
1998

COUNTRY	HIB VACCINE GIVEN		REMARKS
	PUBLIC SECTOR	PRIVATE SECTOR	
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 1999
BER	Yes	Yes	
BLZ	No	Yes	Being discussed. Financial Constraint
BVI	No	Yes	Early 1999
CAY	Yes	Yes	
DOM	No	Yes	No Plans Yet. Financial Constraint
GUY	No	Yes	Financial Constraint
GRE	No	Yes	Dependent on Revolving Fund Price
JAM	No	Yes	Recommended for 1999
MON	No	No	Will begin in 1999
SCN	No	No	After completion of Rubella Mass and Hep.B programme well established
STL	No	Yes	Yes, introduction is being considered
STV	No	Yes	To begin in 2000
SUR	No		No plans to introduce as yet
TRT	Selected Group	Yes	Will begin in 1999 for birth cohort
TUR	No	Yes	Will begin in 1999

5.2 Hepatitis B

Hepatitis B infection is a part of the communicable disease reporting to CAREC by member countries. Almost all countries are vaccinating their health workers and other high-risk individuals. The vaccine is a part of the infant schedule in five countries and two countries have proposed to introduce the vaccine in 1999.

Belize has introduced the vaccine in the infant schedule in a region with high prevalence of the disease. Three countries routinely screen pregnant women and two countries have been doing vaccination of the school population.

One problem is that there is no set program for the management of the family or the positive index case.

- **All countries should ensure that health workers and other high-risk individuals are vaccinated against Hepatitis B infection. All countries should consider universal vaccination, as the cost of this vaccine has become affordable to most countries.**

- **Screening for Hepatitis B infection should be done for blood donors and protocols should be developed for the management of the positive index case and family.**

6. Surveillance of Adverse Events

The thorough surveillance of vaccine-associated adverse events conducted during the recent mass MMR campaign in the Bahamas provided reassuring results about the safety of the vaccine when used in older age groups. However experiences in Brazil and Suriname have indicated that in some instances the rate of aseptic meningitis and parotitis, due to the mumps component of the vaccine may be higher than expected. Additional information on the rates of adverse events associated with the different strains of the mumps component is needed.

Nevertheless, it seems that most adverse events reported after vaccine administration are coincidental due to the large number of vaccine doses administered. The number of adverse events detected may be particularly high in the context of campaigns when large number of doses are administered over a short period of time.

- **It was again emphasized the need for countries to implement surveillance systems for adverse events following immunizations. Proper training of health care providers and communication with the public and the media are important elements of such a surveillance system.**

6.1 Adverse Events Surveillance in the U.K.

There has been a system for passive reporting of adverse events in the UK since the 1960s. This system utilizes Yellow Cards, available to all doctors and pharmacists, and accepts reports of all adverse events, especially those that are unexpected, serious or fatal. Recently a new hospital linked system has been used to identify the attributable risk of meningitis from Urabe based MMR vaccines, the risk of thrombocytopenia after any MMR vaccine, the lack of increased risk of convulsions after Hib vaccine, and is being used to investigate the suggested association between autism and MMR vaccine.

Postulated long-term sequelae from MMR vaccine, such as inflammatory bowel disease and autism, have attracted much media attention in the last few months. After detailed examination of these claims by independent experts, the Department of Health has taken a strong line in supporting the immunization programme with new materials for health professionals and parents.

In responding to scare stories that have the potential to seriously damage immunization programmes, it is important to respond rapidly, consistently and convincingly. The use of independent experts and the involvement of WHO have been effective. As perceptions of disease seriousness wane, and parents become more concerned about vaccine safety, so the availability of scientific evidence to show that vaccines are indeed safe becomes paramount.

7. Other Issues

7.1 Yellow Fever

In 1998 Suriname was notified of a case of yellow fever at the border with French Guyana. A yellow fever campaign was executed in June, targeting persons 9 months of age and older in villages along the Lawa river. The total vaccinated was 746 individuals. Guyana also was notified of 5 Guyanese nationals diagnosed with yellow fever in Brazil. Control measures were implemented in three regions, and approximately 72% of the target group were vaccinated.

- **In view of the increase in yellow fever cases in the region, all countries should circulate the case definition and heighten surveillance for this disease. This is even more applicable for the countries of Guyana, Suriname, and Trinidad and Tobago.**

- **Countries that have a history of confirmed yellow fever cases should consider introducing this vaccine in their infant immunization schedule.**

7.2 The meeting reiterated the recommendation of use of Td vaccine instead of TT and the use of BCG at birth, or as early as possible after birth, with no need for booster doses. Once an individual has received five doses of Tetanus toxoid containing vaccine (DPT, TT, DT or Td) there is no need for additional boosters.

IV. Financial Analysis of 1999 National Work Plans

All countries have presented and discussed their 1999 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 1999 is on the order of US$ 11,855,190, 93% 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, as it seems that inflation was not taken into consideration when estimating salaries of personnel, for example.

National funds	US$ 11,036,960
PAHO	US$ 529,200
UNICEF	US$ 181,250
OTHER	US$ 107,780
TOTAL	**US$ 11,855,190**

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

Biological and Logistics	US$ 101,500
Cold Chain	US$ 136,050
Training	US$ 133,980
Social Mobilization	US$ 174,750
Operating Costs	US$ 89,620
Supervision	US$ 58,000
Surveillance	US$ 54,430
Research	US$ 50,400
Evaluation	US$ 19,500
TOTAL	**US$ 818,230**

V. 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 1998, the country receiving the Award was **Anguilla**. Trinidad and Tobago and Cayman Islands received citations for second and third place. Participants at the 15th Caribbean EPI Managers' Meeting congratulate Anguilla for being the recipient of this recognition, extending the compliments also to Trinidad and Tobago and Cayman Islands for their performance.

VI. Future Meeting Plans

The next meeting will be held in November, 1999.

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