Pan American Health Organization
Regional Office of the World Health Organization

Immunization Unit
Family and Community Health Area

TWENTY-FIFTH MEETING OF THE CARIBBEAN EPI MANAGERS

FINAL REPORT

NEW PROVIDENCE, BAHAMAS
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ACRONYMS

AFP	Acute Flaccid Paralysis
BCG	Bacille Calmette-Guérin
CARPHA	Caribbean Public Health Agency
CAREC	Caribbean Epidemiology Centre
CARICOM	Caribbean Community
CCH	Caribbean Co-operation in Health
CMC	CARICOM Member Country
CPHA	Canadian Public Health Association
CRS	Congenital Rubella Syndrome
CSF	Cerebrospinal fluid
DALY	Disability-adjusted life-year
DTP	Diphtheria-tetanus-pertussis vaccine
DTP3	Third dose of diphtheria-tetanus-pertussis vaccine
dT	Reduced diphtheria-tetanus vaccine
EPI	Expanded Program on Immunization
EW	Epidemiological Week
FCH/IM	Family and Community Health Area/Immunization Unit
GIS	Geographical information system
GIVS	Global Immunization Vision and Strategies
GSK	GlaxoSmithKline
Hep B	Hepatitis B
Hib	*Haemophilus influenzae* type b
HPV	Human papillomavirus
HHV	Human herpes virus
IPV	Inactivated polio vaccine
ISIS	Integrated Surveillance Information System for Vaccine-preventable Diseases
MESS	Measles Elimination Surveillance System
MMR	Measles-mumps-rubella vaccine
MR	Measles-rubella vaccine
MOH	Ministry of Health
NGO	Non Governmental Organization
NRA	National Regulatory Agency
OPV	Oral polio vaccine
PAHO	Pan American Health Organization
PASC	Pan American Sanitary Conference
PCR	Polymerase Chain Reaction
PESS	Poliomyelitis Surveillance Elimination System
RGD	Regional Health Service
RF	PAHO Revolving Fund for Vaccine Procurement
RIVS	Regional Immunization Vision and Strategy
RV	Rotavirus
TAG	Technical Advisory Group on Vaccine-preventable Diseases
TORCH	Toxoplasma gondii; other viruses (HIV, measles, and more); rubella (German measles); cytomegalovirus; and herpes simplex
UNICEF	United Nations Children's Fund
VWA	Vaccination Week in the Americas
WCBA	Woman of childbearing age
WHO	World Health Organization

TWENTY FIFTH CARIBBEAN EPI MANAGERS' MEETING

I. INTRODUCTION

The Caribbean EPI Managers celebrated their 25th annual meeting at the Sheraton Nassau Beach Resort, New Providence, Bahamas from 17-21 November 2008. The meeting was attended by over 80 persons from 19 CAREC Member countries, in addition to French Guiana, Martinique, and the USA. Attendees included not only participants from Ministries of Health, but also representatives from the US Centers for Disease Control and Prevention (CDC) and PAHO Representations (Barbados, Guyana, Jamaica, and Suriname). The meeting commenced with a flag-bearing ceremony conducted by the Royal Bahamas Defense Force, followed by the National Anthem and prayer. Special music and musical renditions were provided by the Royal Bahamas Police Force Band and Monesha Bowleg, student of Prince William Junior High School. The welcome address was given by the Ag. Director of Nursing.

The opening ceremony was chaired by Dr. Merceline Dahl-Regis, Chief Medical Officer, Ministry of Health, Bahamas. The Director of the PAHO Caribbean Epidemiology Center and CDC representatives gave greetings and exhortations. Dr. Merle Lewis, PAHO/WHO Representative for the Bahamas, congratulated the EPI Managers for their achievements over the past twenty-five years and the successful partnerships forged in order to extend protection for children through vaccination. She further stated that the EPI Managers not only achieve milestones in disease elimination but won gold medals for leading the sub-region in being the first to achieve measles, rubella, and CRS elimination. The Governments of the countries in the Caribbean Community have played pivotal roles in providing appropriate funding for the immunization programme.

The objectives of the meeting were stated by Dr. Cuauhtémoc Ruiz Matus, Senior Advisor, Comprehensive Family Immunization Project, PAHO, who also gave a brief history of the Caribbean EPI Managers' meetings. The EPI programme of the Caribbean, with technical guidance from the PAHO/WHO Sub-regional Immunization Officer, started its full implementation phase during the years 1978 to 1980. Countries were then challenged to achieve low levels of disease incidence. By the end of 1980, each country had identified a programme manager in charge of EPI planning and implementation. The first EPI course on Planning, Management, and Evaluation was held in St. Kitts, from 5-14 December 1979. During 1981, EPI training workshops were conducted in 9 countries with the aim of improving immunization coverage through better planning, management, and evaluation procedures. The workshops led to the 1st Caribbean EPI Managers' Sub-regional meeting, held in Kingston, Jamaica, from 14-18 September 1981.

Mr. Henry C. Smith, a special invitee, was acknowledged. He was the first Immunization Officer for the sub-region, and also played a catalytic role in the origin of EPI Managers meetings.

The keynote address was given by Dr. Hubert A. Minnis, Minister of Health, Bahamas. He wished the participants a fruitful and productive meeting to combat the global challenges faced by the immunization programmes. Through cooperation and sharing of resources, all countries have benefited from vaccination and have been able to forge long-standing and successful partnerships. Since the inception of its immunization programme in the 1970s, the Bahamas have achieved high vaccination coverage and has consequently experienced a reduction in morbidity and mortality from vaccine-preventable diseases. Over the years, the number of administered vaccines has expanded to include Hib, MMR, Hepatitis B, and yellow fever. These available vaccines have been procured through the PAHO Revolving Fund and have been fully funded by the Government. He attributed the affordability of the vaccines to the use of the Revolving Fund. The Bahamas, in taking an aggressive approach to protect the wealth and

health of the nation, have ensured that surveillance is timely and effective and the EPI remains a priority, although there are economic challenges. A major challenge is that, in order to procure new vaccines, the country will need to identify fiscal space to afford these vaccines. Another challenge is that the collective mission is to eradicate, eliminate, or reduce vaccine-preventable diseases as an integral part of primary health care.

A. OBJECTIVES OF THE MEETING

The purpose of each of the annual sub-regional meetings of the immunization program was defined as follows:

1. To share experiences and lessons learned at the regional, sub-regional, and national levels in order to enrich our collective understanding, to build on the successful lessons learned, and to refine our strategies, when deficits are detected;

2. To provide scientific, technical and programmatic updates in order to ensure that the cutting edge of the issues and information remain and therefore, one is always positioned to answer relevant questions from Ministries and other stakeholders; and

3. To review current plans and outcomes and to develop new plans for the future, because planning and evaluation are important managerial elements for enhancing performance, mobilizing resources, and guaranteeing financial sustainability.

The specific objectives of the 25th annual meeting of the Caribbean EPI Managers are as follows:

Objectives:

1. Analyzing the status of measles elimination;
2. Evaluating the status of rubella/CRS elimination in the countries;
3. Sustaining the eradication of wild poliovirus in each country;
4. Finalizing polio certification and poliovirus containment issues for the Region;
5. Analyzing the status of the EPI programme in each country;
6. Maintaining heightened surveillance of influenza and severe acute respiratory infection (SARI) in selected countries;
7. Discussing the results and proceedings from the HPV Stakeholders' Policy and Planning Meeting;
8. Discussing the introduction of vaccines such as influenza, pneumococcal, and rotavirus in the EPI in countries;
9. Discussing the status/improvement of surveillance of adverse reactions to vaccines;
10. Setting the targets and objectives of each country with respect to immunization coverage and reduction of morbidity and mortality from EPI diseases for the year 2009;
11. Updating information on selective scientific topics of common interest to countries in relation to immunization, delivery service, and surveillance of measles/rubella and other EPI diseases;
12. Discussing the implementation status of the rotavirus surveillance system in selected countries; and
13. Developing an action plan with a specific budget for each activity for each country to achieve the targets and objectives set for 2009.

Two chairpersons were elected: Dr. Elizabeth Ferdinand was elected to chair the meeting for the first three days and Ms. Lyn Jackson for the remaining two days.

The report of the meeting will be divided into sections: protecting our achievements, addressing the unfinished agenda, and confronting new challenges.

B. CAREC SURVEILLANCE PRIORITIES

The Caribbean Epidemiology Centre (CAREC) sits at a crossroad in regional health with critical needs such as strategic direction, with an aligned and fully approved biennial work plan, an updated human resource plan, and integration with the Technical Cooperation of the organization. Strengthening CAREC aims at providing the best possible background for the development of the Caribbean Public Health Agency (CARPHA). The strengthening of CAREC is an internal PAHO driven process and is independent from CARPHA. The realignment is being used to refocus CAREC to its public health core functions such as surveillance and epidemiology which includes laboratory services in support of surveillance as a major priority.

As the laboratory is strengthened, it will be repositioned as a major surveillance tool and will retain and expand capacity for detection, identification, and typing of infectious agents. The four major focus areas for CAREC for 2008 to 2009 will be strengthening of the surveillance systems, strengthening of public health laboratory capacity in support of surveillance, public health information and research, and leadership and coordination.

Some of the main priorities for surveillance are communicable diseases which will include vaccine-preventable and emerging infectious diseases, non-communicable diseases, injuries and violence, mortality surveillance, strengthening data analysis, and interpretation capacity.

C. OVERVIEW OF EPI: THE AMERICAS

Dr. Ruiz Matus, reviewed the Regional Immunization Vision and Strategy for the Americas (RIVS), within the wider context of the Global Immunization Vision and Strategy (GIVS), which consists of four major strategies, namely, reaching more persons through family immunization; expanding our technical and strategic thinking through partnerships; promoting global interdependence through assured vaccine supplies; and introducing new vaccines to reduce the morbidity and mortality due to rotavirus and pneumococcal infections.

RIVS presents three main goals for the immunization programme in the Region of the Americas: (1) Protecting the achievements; (2) Completing the unfinished agenda; and (3) Meeting new challenges. RIVS has helped with the certification of wild poliovirus laboratory containment; the conclusion of mass vaccination campaigns for measles, rubella, and CRS elimination; Vaccination Week in the Americas activities; increased use of the vaccine against seasonal influenza; the introduction of new vaccines against rotavirus, pneumococcus, HPV; increased use of the RF; the strengthening of immunization services; resource mobilization; and the publication of reports on program advances.

PROTECTING THE ACHIEVEMENTS

II. IMMUNIZATION AND VACCINE-PREVENTABLE DISEASES

A. OVERVIEW OF THE EXPANDED PROGRAM ON IMMUNIZATION - 2008

The progress made towards the elimination and eradication of measles and rubella has been a major catalyst for the health practitioners in the Caribbean to tackle the control of other vaccine-preventable diseases. With WHO pre-qualifying the newly introduced vaccines, such as

pneumococcal vaccine, lack of affordability has hampered the incorporation of new vaccines in the public sector vaccination schedules of countries.

Governments remain committed to maintaining the gains made in immunization and confronting the new challenges of creating fiscal space to afford new vaccines. Timely and effective surveillance and response have ensured that successes are maintained should vaccine-preventable diseases be imported into countries.

1. Vaccines and Vaccination Coverage

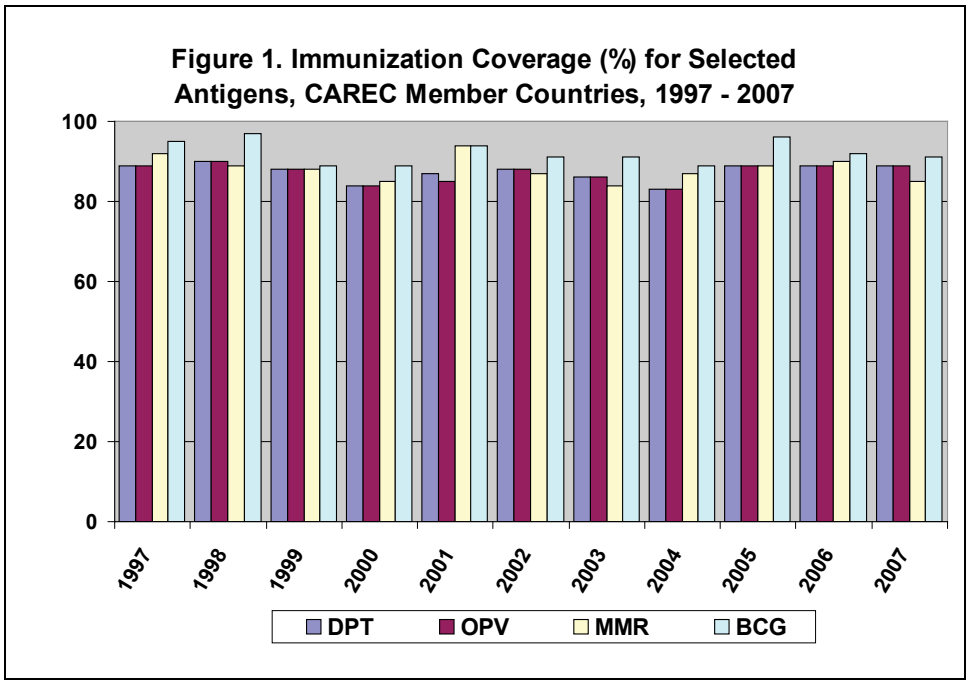
Targeting the family along life stages is one of the goals of the immunization programme. Therefore the immunization schedule has been expanded to address infants, children, adolescents, adults, the elderly, and groups with special needs.

All countries are presently administering pentavalent and hexavalent combination of vaccines. The replacement of oral polio vaccines (OPV) by inactivated polio vaccine (IPV) is an issue that needs to be discussed at further meetings. Two countries (Bermuda and Cayman Islands) already have pneumococcal vaccines in the public sector schedules and less than five countries are administering the vaccine to at-risk population. Two other countries, Barbados and Guyana, have initiated training activities and will have full implementation by first quarter of 2009. HPV vaccines have already been introduced in Bermuda and are currently being introduced in the Cayman Islands. Rotavirus vaccine will be fully introduced in Guyana by the first 2009 quarter. Vaccination service delivery in countries is usually integrated with child health clinics in the primary health care sector and the private health care system.

The main vaccination goal is achieving equity in provision of vaccination services, in countries, with the following specific objectives:

1. To achieve 95% or more national coverage for each administered vaccine.
2. To achieve 95% or more coverage at each region, district, or zone level.

For 2007, the average coverage for primary immunization (3 vaccine doses) for the Caribbean sub-region is DTP 89%, OPV/IPV 89%, Hib 89%, hepatitis B 89%, MMR1 85%, and BCG 91% (Figure 1).



In 2007, vaccination coverage remained unchanged, except for a decrease in MMR vaccination coverage in Barbados and Jamaica. The decrease in MMR coverage in Barbados was due to inadequate quantity of vaccine available in the last 2007 quarter while for Jamaica there were issues with data quality and an inability to reach all target population. Twelve countries had DTP3 vaccination coverage of 95% or more, while all countries had coverage greater than 80% for all antigens except for MMR vaccine (Table 1).

Table 1. Distribution of Vaccination Coverage (%), Caribbean Sub-region, 2006-2007

Coverage (%) in Children 0-11 Months	DPT X 3		TOPV X 3		MMR (12-23 months)	
	2007	2006	2007	2006	2007	2006
<50	0	0	0	0	0	0
50 - 79	0	0	0	0	2	0
80 - 89	4	4	4	5	5	7
90 - 94	4	4	4	4	2	5
≥95	12	11	12	10	11	8
Sub-regional Coverage	89	89	89	89	85	90

Source: MOH Reports to EPI/CAREC.

Belize, together with ten countries, has attained over 90% coverage for all antigens in all districts. Regarding MMR vaccination, Guyana reached >95% coverage in 5 of its 10 regions, Jamaica in none of its 14 parishes, and Trinidad and Tobago in 4 of its 6 counties.

In 2008, a vaccination coverage survey was conducted in St. Maarten. A vaccination coverage survey is proposed for Belize and Trinidad and Tobago, and a data quality audit for Jamaica. Jamaica also needs to increase their vaccination coverage to greater than 95%.

RECOMMENDATIONS

- All countries should attain coverage levels for all administered antigens of 95% or greater at national and sub-national levels.

- All countries should make efforts to assess the quality of vaccination data and implement mechanisms to collect vaccination data from the private sector.

2. Surveillance

All countries have continued weekly surveillance of vaccine-preventable diseases. The last case of diphtheria was reported in 1994. No case of neonatal tetanus was reported in 2008. The anthropological study recommended in the affected geographic area (Suriname) was conducted in 2008. The study was to determine current practices and develop solutions for improved management of the problem. Cases of non-neonatal tetanus continued to occur in countries, mainly in adults and the elderly and 12 cases were reported in 2007, while as of epidemiological week 43, 2008, 4 cases had been notified from 2 countries. Two cases of laboratory confirmed pertussis have been reported so far as of EW 43, 2008. Prevention and control measures, including vaccination, were implemented.

In 2007, 4 cases of Hib meningitis and 11 cases of pneumonia were reported while 5 cases of meningitis were notified in 2006.

Recent Pertussis Cases

Belize reported two cases of pertussis in June 2008 in children aged 3 years and 6 years, from the Cayo district. Both children are siblings and unimmunized against any of the communicable diseases. These cases were confirmed by clinical symptoms and IgG positive for *Bordetella pertussis*. As a result, a nearby community and the school where the children attended were visited to review the immunization status of children and identify any other suspect cases. Most of the children were noted to be immunized and those who had incomplete schedules were updated with all required vaccines. Both children recovered well and together with their older sibling were updated with all required vaccines.

Recent Mumps Cases

St. Lucia experienced a mumps outbreak in 2008. The first case of parotitis was seen at a medical clinic in March 2008, where the client was a 17-year old male. Subsequently, cases were reported from the public and private sectors and ages ranged from 13 to 30 years. Among the cases were 15 children from a secondary school. From the 125 samples sent to CAREC for testing, 31 samples were laboratory confirmed positive mumps cases. The genotype is G. All cases were managed by isolation at home and booster MMR doses were administered to their contacts.

RECOMMENDATIONS

- All health care providers are strongly encouraged to administer tetanus-containing vaccines boosters to at-risk adults, such as farmers, carpenters, gardeners, every 10 years, utilizing all contacts with health care system as potential opportunities for vaccination**.**

- CAREC's laboratories should urgently explore the feasibility of establishing a PCR diagnostic capability for *Bordetella pertussis*, similar to that used by the CDC.

- CAREC's laboratory should assist selected national laboratories with the provision of reagents for pertussis confirmation.

3. PAHO Revolving Fund and Challenges

The experience and historical aspects of the Revolving Fund (RF) and its benefits for the countries and manufacturers of vaccines were analyzed. Currently the RF is being pressured by other institutions and the manufacturing industry to change its principles of single price and lowest available price. Such change means that the principles of solidarity and access to quality vaccines would be affected and immunization programmes in the Caribbean would be seriously compromised with unfortunate consequences for public health.

The EPI Managers recognized the role of the RF in the immunization programme as the RF has been used by countries of the Caribbean Community to acquire affordable vaccines. Therefore, country participants drafted and signed the Declaration of Nassau, Bahamas, through which they endorse maintaining the principles and criteria of the operation of the RF (Annex 1). The meeting participants urged PAHO to continue to maintain its technical support through the RF in order to ensure access to safe and affordable vaccines.

B. PROGRESS WITH MEASLES, RUBELLA, AND CRS ELIMINATION

1. Measles, Rubella, and CRS: A Regional Perspective

In 2003, the Directing Council of the Pan American Health Organization approved a Resolution calling for the elimination of rubella and CRS from countries of the Americas by the year 2010. In 2006, this goal was reinforced by another resolution urging PAHO Member States to implement those policies and operational strategies that were necessary to achieve the rubella and CRS elimination target by 2010. The strategies recommended by PAHO, if implemented, will result in the achievement of rubella and CRS elimination. Recently countries, including Jamaica, have experienced importations of measles from Europe. The main risks posed by these importations include the reestablishment of endemic virus transmission; the perception of failure of the measles and rubella elimination strategies; the loss of public confidence; and unanticipated expenditures incurred for outbreak control activities.

Issues Raised for Measles, Rubella, and CRS Elimination in the Caribbean

1. **Follow-up of contacts:** The occurrence of an outbreak in the Region requires a rapid response and the immediate initiation of outbreak control measures to limit the number of secondary cases. PAHO's current recommendation is to follow potential contacts of a confirmed measles and/or rubella case for a period of 30 days to ensure for the timely detection of secondary cases (based on the incubation period of these diseases: 7-21 days for measles and 12-23 days for rubella). This 30-day period should be divided into three visits, namely follow-up of contacts at 10 days, 20 days, and 30 days, which have resulted from practical experience. These periodic visits will allow health workers to obtain timely serum samples at the initiation of symptoms during the acute phase for the laboratory confirmation of cases. It is recommended that contacts remain in their homes if they present general malaise until the epidemiological investigation is complete, or in the situation of a confirmed case, until the communicable period is over.

2. **Alternative samples in place of a blood specimen:** If a blood specimen is not easily obtained from a suspect measles/rubella case, a saliva specimen provides an alternative for virus detection; however, the use of saliva specimens require additional training in sample collection and processing procedures. Currently few laboratories in the Region, except for only labs in Canada, Fiocruz (Brazil), and CDC (USA), have the capacity to process saliva.

Another alternative is the use of a throat swab for virus detection but will depend on the day of the disease. Finally a finger stick to collect blood drops to be applied to filter paper (dried blood) can be used.

3. **Dengue laboratory algorithm:** During a dengue outbreak, serum samples should first be processed for dengue. If the laboratory yields negative results for dengue, samples should then be processed for measles/rubella specific antibodies. However, if measles/rubella is initially suspected, serum samples should first be processed for measles and rubella in order to classify the case by laboratory. During the elimination phase, case-based investigations are implemented and decisions should be based on case characteristics and the current epidemiological situation. The recommendation is maintained that 10% of all dengue cases with rash that yield negative laboratory results, taking into consideration the number of samples, should be processed for measles/rubella.

4. **Sensitivity of surveillance:** High quality integrated measles/rubella surveillance is required to document and verify measles, rubella, and CRS elimination and to ensure the capacity of the system to rapidly detect imported and sporadic cases. Countries must ensure the completion of the performance surveillance indicators in order to assess the quality of surveillance and its capacity to rapidly detect and respond to these cases. Of critical importance to surveillance sensitivity is the completion of the reporting rate of suspect cases or the reporting of at least 2 suspect measles/rubella cases per 100,000 population (municipalities with <100,000 inhabitants should report at least one suspect case).

RECOMMENDATIONS

PAHO recognizes the important role that Caribbean countries have played in the elimination of measles and rubella as pioneers in the regional initiatives. In order to ensure the sustainability of the progress gained to date and to document and verify these achievements, the following recommendations are made:

- In accordance with Resolution CSP27.R2, all Caribbean countries should establish a national commission and develop a plan of action for the documentation and verification of measles, rubella, and CRS elimination, which includes a realistic timetable for goal completion. Given that the Caribbean countries are small, a discussion should be held to determine if one national commission should be established at the sub-regional level.

- Caribbean countries should consider implementing the documentation and verification process at the sub-regional level, including the collection and analysis of essential measles and rubella data for this geographical sub-region.

- All countries should conduct an analysis of vaccinated cohorts against measles and rubella to estimate whether the level of population immunity is sufficient ($\geq$95%) to prevent the reestablishment of endemic measles and rubella virus circulation and implement additional vaccination strategies if needed.

- All countries should develop plans for rapid outbreak response and the implementation of adequate control measures to limit the number of cases secondary to importations.

- All Caribbean countries should evaluate the quality of the surveillance system to rapidly detect and respond to sporadic measles and rubella cases due to importations.

- During the elimination stage, epidemiological surveillance system should be strengthened to ensure a degree of sensitivity for the timely detection of all measles, rubella, and CRS cases.

- Considering the challenges presented in an elimination setting, countries should ensure the timely collection and adequate number of samples to be processed to ensure the timely classification of measles, rubella, and CRS cases.

2. Progress of Measles, Rubella, and CRS Elimination in the USA

Measles, rubella, and CRS have been eliminated in the United States. To declare elimination, in 2000 and 2004, the CDC convened meetings of external experts to review the available evidence on the following aspects:

- Measles, rubella and CRS epidemiology;
- Molecular epidemiology;
- Data from modeling;
- Vaccine coverage;
- Population immunity;
- Adequacy of surveillance (especially challenging for rubella); and
- Measles and rubella epidemiology in the Americas and globally.

The strategies implemented by the United States to maintain elimination include maximizing population immunity through vaccination, ensuring adequate surveillance, rapid outbreak response, and working towards improving global disease control.

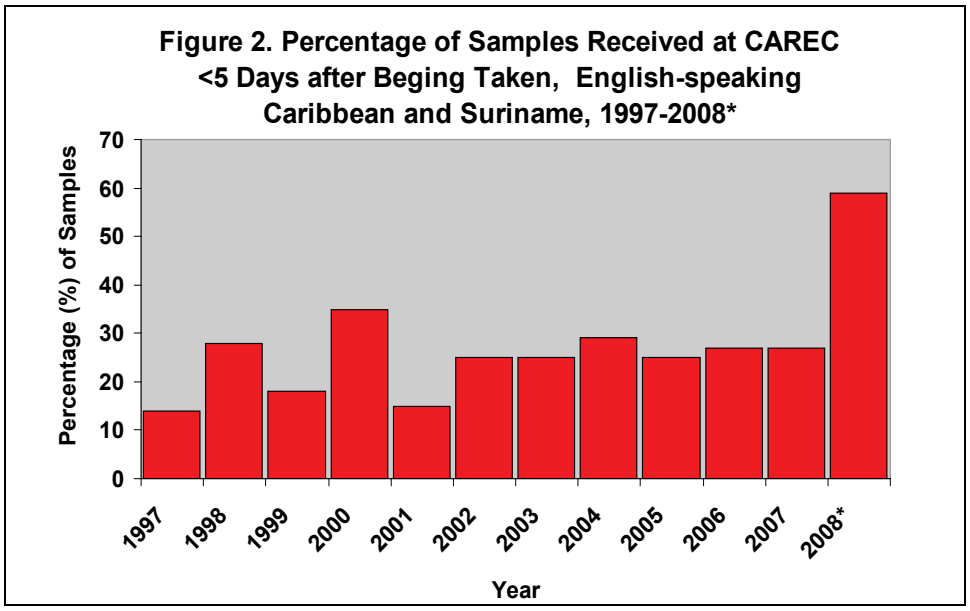
Even though measles and rubella are no longer endemic diseases, approximately 50 measles and 10 rubella cases are reported each year (2002-2007). In 2008 (as of 7 November), 135 measles cases (7 outbreaks) have been reported, predominantly in unvaccinated children.

3. Measles, Rubella, and CRS Elimination in the Caribbean: System Performance

Case Reporting

Reports of suspect measles, rubella, and CRS cases are being produced from over 700 sites in countries for 2008, of which 99% are reporting on a weekly basis. National reports include public and private health facilities and overall public sector sites account for about 85-90% of total sites. Routine reporting of febrile rash illness continues from French Guiana, while the Netherlands Antilles have started reporting again since 2007.

The proportion of febrile rash samples reaching CAREC's laboratory within less 5 days after collection markedly increased from 27% in 2007 to 59% in 2008 (EW 43) (Figure 2). The improvement is due to the timely response of Jamaica to an imported measles case.



Challenges

The external and some internal airline courier systems that are being used are still unable to meet the surveillance system demands for rapid specimen transport. Specimen transport within countries is problematic at times, as there is often no formal or funded mechanism to guarantee a reliable transport. Airport clearance remains challenging although some improvements have occurred. Payment for the collection and testing of clinical specimens, in the private sector of a few countries has not been resolved and adequate case investigation has been hampered. There is need for an expansion in the number of private sector practitioners who would contribute to the surveillance network.

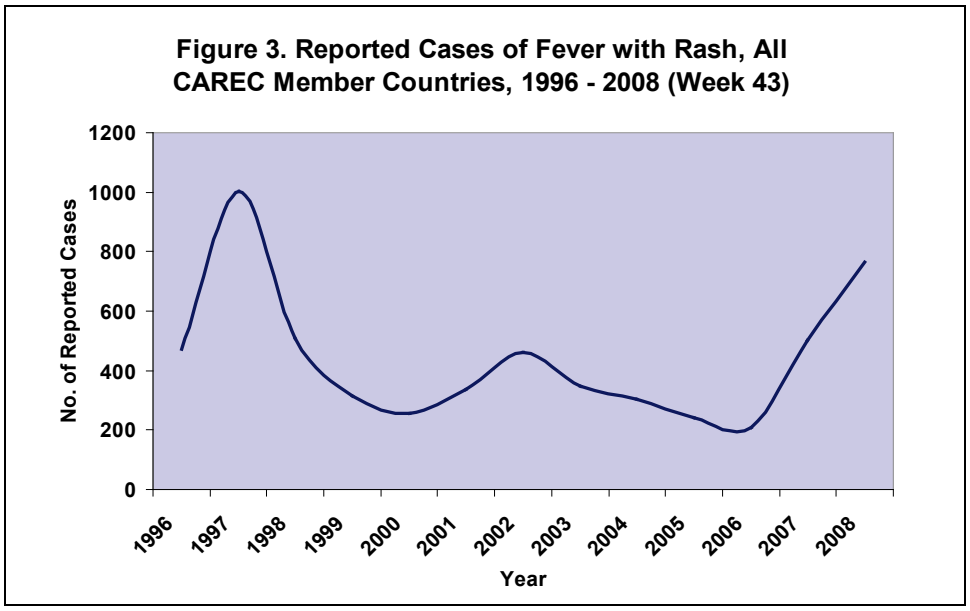
Classification of Cases

The surveillance system for suspect measles/rubella or fever/rash has also functioned as an alert system for dengue fever in the countries. From 1991, when the system started, to 2007, 7,111 cases were reported and laboratory testing was conducted in 99% of cases.

During the period of 2000-2007, 2,630 suspect cases were reported through the febrile rash illness surveillance system and of these, 27 were laboratory confirmed as rubella infection and 239 as dengue fever.

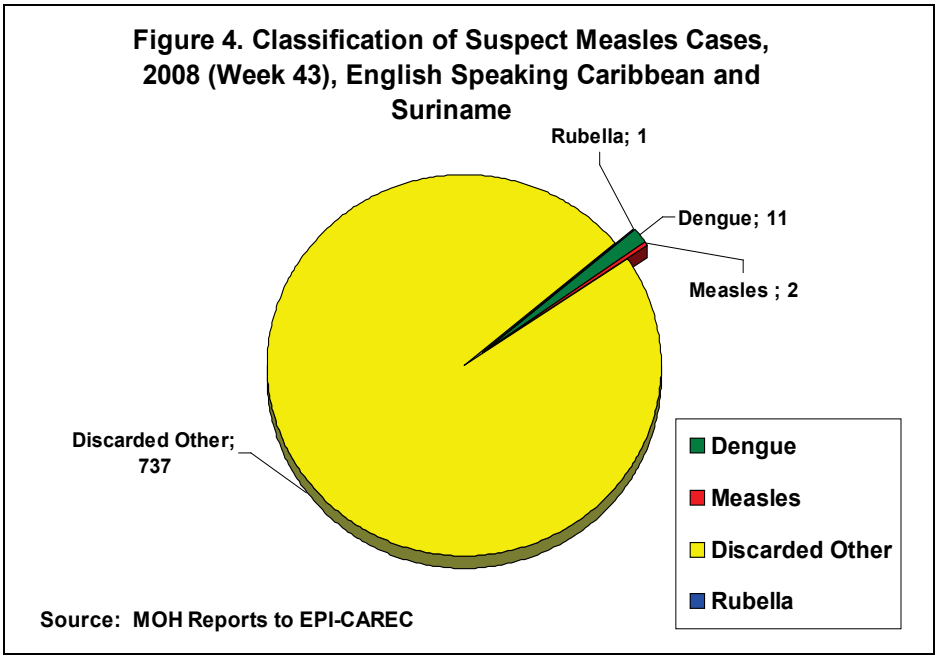
No confirmed case of measles was identified in any of the laboratory tested specimens, while 2,408 cases tested negative for measles, rubella, or dengue fever. Of these negative cases, one hundred and four were laboratory confirmed as due to human herpes virus type 6 (HHV-6). Other clinical diagnoses include scarlet fever, varicella, and allergic reactions.

As of EW 43, 2008, 765 cases of fever rash illness were reported, representing a cumulative increase of 178% over case reports for the corresponding period in 2007. This is due to heightened surveillance activities in response to an imported measles case in Jamaica and increased dengue fever virus activity in some countries (Figure 3).



These cases were reported from twelve countries, with Jamaica notifying 76% of cases, followed by Belize (9%) and Guyana (6%). Of the reported cases, 31% were aged <2 years, 28% aged 2-4 years, 32% aged 5-14 years, and 9% aged 15 years and older.

Of the 765 cases, 2 were laboratory confirmed as measles and one as rubella. Of the measles cases, one was imported and the other one import-related. The imported case was an 8-year old tourist from the United Kingdom and the import-related case was a 17-month old relative of the index case. The rubella case was also imported. Twelve cases were laboratory confirmed as due to dengue virus infection, while 737 cases were discarded as negative for measles, rubella, and dengue fever. Twenty-six cases are still under investigation (Figure 4). Prior to these confirmed measles cases, the last laboratory confirmed case of measles in the Caribbean sub-region occurred in 1998 in a tourist from Europe.



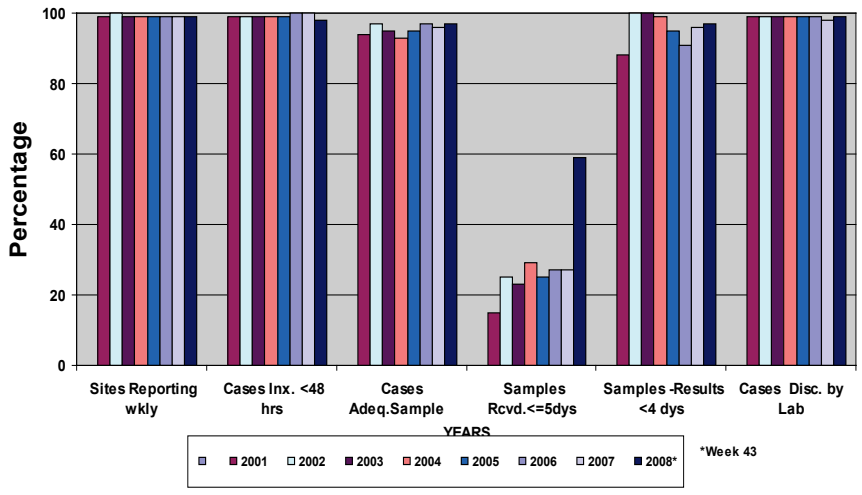
Of those cases with test results that were negative for measles and rubella, specimens from 113 cases aged <5 years were tested for human herpes virus type 6 (HHV-6/roseola). Eleven cases (10%) were confirmed as HHV-6 on the basis of their IgM positivity.

In addition to the cases reported by CAREC member countries, French Guiana and Netherlands Antilles reported a total of 273 fever/rash cases, of which one case from French Guiana was laboratory confirmed as rubella, and none from Netherlands Antilles were laboratory confirmed as measles, dengue, or rubella.

Surveillance Indicators

In 2007, 99% of surveillance sites reported on a weekly basis with 100% of cases being investigated within 48 hours. Ninety-six percent of cases had adequate samples taken and 95% received laboratory results in less than 4 days. Nearly all cases (98%) were discarded on the basis of laboratory testing. Only 27% of samples arrived at the CAREC laboratory in less than 5 days post collection (Figure 5). As of EW 43, 2008, 99% of sites had been reporting on a weekly basis with 98% of cases investigated within 48 hours. Adequate samples had been collected from 97% of cases and 97% had received laboratory results in less than 4 days. Ninety eight percent of specimens were discarded by laboratory testing. An improved 59% of samples arrived at the CAREC laboratory within 5 days after collection.

Figure 5. Status of Measles-Rubella Surveillance, 2001-2008*, Caribbean Subregion



Impact of the Rubella Vaccination Programme

Since mass rubella vaccination activities conducted in countries between 1997 and 1999, there has been no confirmed rubella case during the period 2002 to 2007, with the last cases having been recorded in 2001. In 2008 (EW 43), an imported rubella case was reported from Bermuda and another rubella case from French Guiana.

In 2008 (EW 43), a total of 39 cases were evaluated for CRS, of which four were referred as suspected CRS and 35 for TORCH studies. In 2007, 5 suspect CRS cases were referred for testing and 70 cases for TORCH laboratory evaluation. All specimens were laboratory confirmed

as rubella negative. The last indigenous CRS case in CAREC member countries was recorded in 1999.

Status of Measles and Rubella Surveillance System, St. Kitts and Nevis

The surveillance system was established in 1991 with an emphasis on the reporting of rash and fever. In January 2001, 17 reporting sites were involved in the active surveillance and currently there are 21 reporting sites. Over the period of January 2001 to October 2008, 19 suspect cases have been reported. Of these, none were confirmed cases of measles, rubella, or congenital rubella syndrome.

Cases were investigated in a timely manner and appropriate specimens with forms sent to CAREC. Results were received quickly. The success is strongly dependent on active surveillance, education, international collaboration, and vaccination of the population.

Status of Measles and Rubella Surveillance System, Suriname

The measles surveillance system started in 1991 in Suriname and the network consists of 21 Public Health centers, 5 private clinics and 6 hospitals. The sentinel sites are called weekly by telephone. In 1997 rubella and CRS surveillance was integrated into the measles surveillance system. Laboratory diagnosis also started in 1991 with the introduction of rash and fever surveillance. The last recorded measles cases were from 1981, during an outbreak that started in the western district of Nickerie and spread within one week to the entire country. Around 720 measles cases were recorded.

In 1998, Suriname experienced a major rubella outbreak. Two hundred and eight suspect cases were reported to CAREC of which 86 were laboratory confirmed. The last rubella case was confirmed in 2000 and the last CRS case in 1999.

Following the strategies for measles and rubella elimination, the following vaccination activities were conducted in Suriname:

- In 1992, a measles elimination campaign was conducted, targeting all children aged 9 months–14 years.
- MMR vaccine was introduced in the routine immunization services in 1994.
- In 1997, an MMR-follow up campaign was conducted in the age group 12 months-5 years with coverage of 98%.
- In 2000, a measles and yellow fever campaign was conducted and its target group was 12 months-40 years.
- In 2000-2001, an MMR/yellow Fever campaign was conducted. The target group was males and females between the ages of 12 months-40 years. The coverage was 82%. During the VWA, outreach immunization activities are being conducted in low coverage areas

There is a decline in reporting on suspect rash and fever cases since 2006. There are no laboratory measles confirmed cases since 1991 and no laboratory confirmed rubella cases from 2000. The last CRS case was in 1999. A MMR follow-up campaign should be conducted to vaccinate the susceptible population. The Measles and Rubella Surveillance System must be strengthened in Suriname by sensitizing all physicians, including private physicians; all health staff, including physicians, should be reminded of the case definition for suspect measles and rubella. Physicians should also be reminded that suspect measles and rubella cases must be ruled out by laboratory investigations.

Recent Measles Importation, Jamaica

An imported measles cases, an 8-year old girl from Dulwich, London, was identified on 11 May 2008. She had received one MMR dose in London. There was one secondary or import-related case. The Ministry of Health and Environment mounted an emergency response on the day of the notification. The main strategies for control were early case identification, decreasing the number of susceptibles, limiting exposure, increasing public education and intersectoral collaboration. Fever and rash surveillance was heightened and 598 samples for suspect cases taken thus far in 2008 compared to 267 in 2007. A MMR mop-up campaign was launched in response to the imported measles case. Up to July 2008, 47,485 MMR vaccine doses were administered, of which 84.4% were administered to the 1-6 year age group. In this age group, 7.2% of doses were first doses. The monitoring of the tracking register, door to door immunization, and sample transportation needs to be more aggressive.

Recent Rubella Importation, Bermuda

In 2008, the Epidemiology and Surveillance Unit was notified of one suspect rubella case, one confirmed imported rubella case, and one confirmed rubella case in a cruise ship from the USA. All these cases have the potential of being transmitted to the general population in Bermuda. The country's defense is continued surveillance and immunization of the population. Rubella screening is performed routinely for all antenatal women.

C. POLIOMYELITIS ERADICATION EFFORTS AND AFP SURVEILLANCE

1. AFP Surveillance: A Regional Perspective

The last case of poliomyelitis associated with a wild poliovirus was reported in the Americas in 1991, and the Region was certified free of circulating, indigenous wild poliovirus in 1994. Even though the World Health Assembly established a goal of global eradication of poliomyelitis in 1988, the wild poliovirus continues to circulate in Africa and Asia, and importations have been occurring quite frequently. This presents a serious risk to countries where polio has already been eliminated. The spread of polioviruses around the world underscores the urgent need to maintain adequate surveillance for Acute Flaccid Paralysis (AFP).

Caribbean countries have been free of the circulation of wild poliovirus since 1982 and all of them have high OPV coverage and maintain AFP surveillance.

The most important issues discussed during this meeting were:

- Every polio-free country in the world is at risk of importations.
- Caribbean countries have high OPV coverage.
- AFP surveillance must improve if Caribbean countries want to be prepared to detect any importation of wild poliovirus.

RECOMMENDATIONS

- Caribbean countries must improve their AFP surveillance, paying special attention to the detection of AFP cases and the adequate collection of clinical specimens.

- Caribbean epidemiologists are strongly encouraged to fully investigate all AFP cases and ensure that they are appropriately classified.

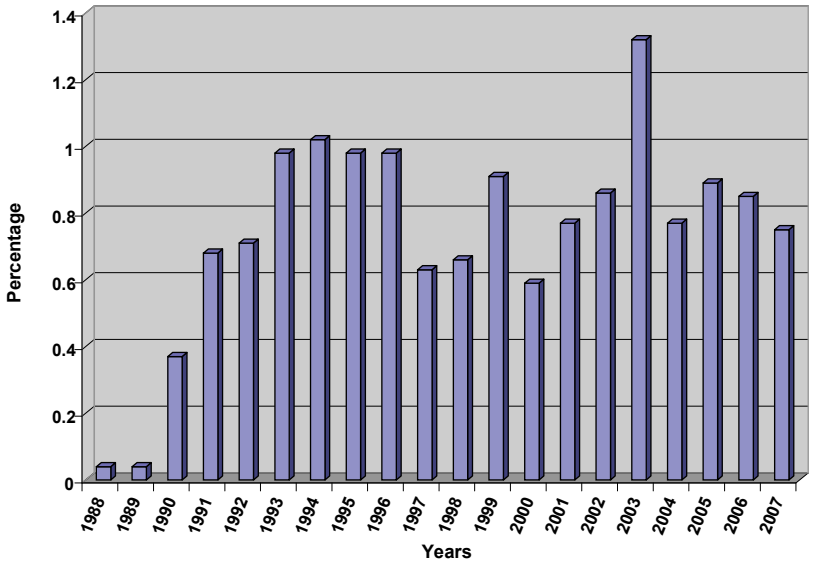
- Countries should evaluate the AFP case surveillance and conduct community searches in order to ensure that cases not attending the health facilities are not missed.

2. AFP Surveillance: A Caribbean Perspective

Global eradication of poliomyelitis is in its last phase and considerable efforts and resources are being expended to ensure that eradication occurs. The last case of poliomyelitis due to the wild virus in the Caribbean subregion was in 1982. The report on the national survey and wild poliovirus inventory was accepted in October 2008. The AFP reporting is done from 493 sites within the countries of the Caribbean Community. Ninety-nine percent of these sites have been reporting on a weekly basis in 2008 (EW 43).

During the period from 1994-2007, 256 AFP cases, aged <15 years, were reported from ten countries. The annual AFP rates ranged from 1.32 to 0.59 per 100,000 population <15 years (Figure 6).

Figure 6. Annual Rate of AFP Cases, the Caribbean 1988-2007, per 100,000 Pop. <15 Years



In 2007, 42 AFP cases ranging in age from 1 to 76 years were reported from 7 countries (Bahamas, Barbados, Belize, Guyana, Jamaica, Suriname, and Trinidad and Tobago). Of these 42 cases, 15 (36%) were aged <15 years and 12 (80%) of the 15 cases were investigated within 48 hours.

Stool samples were submitted from all of the cases <15 years. Eight (53%) of the 15 cases had specimens collected within 14 days of paralysis onset (Figure 7). Bahamas, Belize, Barbados, Guyana, and Suriname satisfied all of the 4 surveillance criteria and the AFP rate was 0.75 per 100,000 population <15 years.

In 2008 (EW 43), 26 AFP cases of all ages were reported from 4 countries (Belize, Guyana, Jamaica and Suriname). The cases ranged in age from 7 months to 70 years; however, only 8 (31%) were aged <15 years. Of the 8 cases aged <15 years, stool samples were collected from 88% of cases and only 38% of cases had specimens taken within 14 days of paralysis onset.

The annual rate of AFP cases per 100,000 population aged <15 years is 0.36. This is far below the recommended rate of 1.0. The indicators of adequate stool specimens and annual rate of

AFP are directly related to the probability of early detection of importations of wild polioviruses from the endemic regions of the world.

RECOMMENDATIONS

- Each EPI Manager should develop mechanisms to implement annual internal validation of the surveillance system and re-sensitize health practitioners in public and private sectors to achieve the AFP surveillance indicators.

- All countries should initiate discussion regarding legislation required for phase 2 – laboratory containment for poliovirus materials.

D. SURVEILLANCE - IMMUNIZATION SAFETY

There was one case report of a serious adverse event associated with vaccination in 2008. However, investigations revealed that the event was not related to vaccination. Training updates and audits in relation to adverse event surveillance were conducted in a number of countries.

E. VACCINE AND LOGISTICS PROCUREMENT

In 2008 (EW 43), vaccine supply interruption in countries has been minimal. All countries have had an adequate supply of syringes and needles.

F. 2008 VACCINATION WEEK IN THE AMERICAS

Overview of VWA in the Americas

In 2008 VWA celebrated its six year as an initiative which works to advance the principles of equity, access, and Pan-Americanism. Each year since 2003, when PAHO's Directing Council adopted Resolution CD44.R1 urging Member States to implement an annual vaccination week, the initiative has grown steadily in size. In 2008, 45 countries and territories participated in VWA and more than 59.7 million people were vaccinated. VWA activities have consistently targeted vulnerable populations with limited access to vaccination; populations located in remote areas and along urban fringes and borders; populations residing in low coverage municipalities; and indigenous communities. In 2008, 12 countries and territories, primarily in the English-speaking Caribbean, also used the week to focus on a variety of social communication and awareness campaigns concerning vaccination.

This year, to celebrate VWA, multiple launching events were celebrated along binational and trinational borders in the Region under the framework of a Health Caravan. Additionally, ten countries and territories also made use of the opportunities generated by VWA to integrate other preventative interventions with vaccination, such as administration of vitamin A, and anti-parasite medications, health education activities and diabetes and tuberculosis screenings.

In terms of vaccine administration, the measles/rubella vaccine and the seasonal influenza vaccine were the most commonly administered antigens during VWA 2008, with approximately 25,545,190 and 17,793,008 doses being delivered, respectively. Additionally, more than 9 million doses of hepatitis B vaccine, and approximately 5 million and 2 million doses of polio and MMR vaccines, respectively, were administered around the Region, as well as a wide variety of other antigens. Additional selected accomplishments can be categorized by the three areas of the Regional Immunization Vision and Strategy, namely protecting the achievements, working towards the unfinished agenda, and meeting future challenges.

a) Protecting the Achievements:

- In 2008, VWA occurred in the midst of multiple national measles follow-up campaigns occurring predominately in Central America. Honduras, Nicaragua, and Panama, vaccinated 687,966 (preliminary data), 375,781, and 236,620 individuals, respectively, aged 1-4 years with the MR vaccine. Guatemala and Ecuador vaccinated 1,853,536 and 1,765,154 children, respectively, aged 1-6 years. Haiti also conducted measles elimination efforts during VWA.
- In addition to their measles campaigns, Ecuador, Guatemala, Honduras, and Nicaragua administered the oral polio vaccine (OPV).
- Occupational health was also a large focus during VWA this year, especially throughout the English-speaking Caribbean. Results include the following:
  - In St. Kitts and Nevis, health workers vaccinated farmers, and fishermen, with the Td and hepatitis B vaccines. St Kitts also organized multiple health education activities targeting these professions.
  - A team of health workers in St. Vincent and the Grenadines visited the parliament and police station to discuss the importance of immunization and to administer Td, hepatitis B, and yellow fever vaccines.
  - In Guyana, VWA initiatives included the vaccination of cane cutters and industrial workers.
  - In Peru, more than 9 million individuals were vaccinated with the first dose of hepatitis B vaccine during the initial stage of a nationwide, three-stage campaign taking place this year. The majority of the individuals vaccinated were aged 2-19 years; however, 326,728 health workers and other at-risk populations also received the vaccine.
- Multiple countries used VWA to complete vaccination schedules, making a marked contribution to the EPI.

Anguilla — Like many Caribbean countries, and in collaboration with PAHO/WHO, Anguilla joined the Americas to celebrate the sixth VWA. The objectives included: (1) maintaining immunization coverage of children aged <1 year at maximum levels, i.e., 95-100%; (2) advocating for all school-age children to be appropriately vaccinated; and (3) targeting the adult population who were never vaccinated or those who did not complete their vaccination schedule in 2007. Highlights of the week included a radio address by the Minister of Health and District Managers participating on a local radio programme 'Health Matters.' Additionally, 173 adolescents at the Albena Lake Hodge Comprehensive School received the 3rd booster dose of DTP. Vaccinations were administered to more than 400 Indian migrants at Viceroy/Barnes Bay Development project with various vaccines. Despite many challenges, the 2008 VWA was very successful and gratitude is extended to all persons who made it possible.

Belize — Mexico and Belize jointly celebrated the 2008 VWA with a Health Caravan in the border community between Belize and Mexico. The objective was to strengthen border collaboration in health through vaccination in low coverage communities and incorporating other preventive interventions for shared public health problems. Delegates from both countries participated in official ceremonies held in both border communities and in signing a letter of intent to establish a bi-national Health Commission. The ceremonies concluded with the handing over of a symbolic immunization torch by the Secretary of Health, Mexico, to the Minister of Health, Belize. Health activities included vaccination with all antigens in the vaccination schedule, medical consultation and screening for diabetes and hypertension, Pap smears screening, dental check up, vector control (larviciding and spraying), and health education sessions.

Trinidad and Tobago — Trinidad and Tobago, celebrated VWA with a number of successful activities. The Ministry of Health participated through the EPI Unit with a two-day display of all vaccines and equipments used in immunization. The display then shifted to the nearby car park where vaccination was offered to the public. All eight counties participated fully, having similar programmes throughout. County St. George West' activities were different in that they organized a competition among their eight health centres. The objective of that competition was to find innovative ways to inform the public regarding immunization. There was an increase in the

number of vaccines administered, especially in the outreach programmes. All countries achieved their objectives with minimal challenges. However, concern was expressed about the shortage of vaccines needed. Officially, Trinidad and Tobago will continue to ensure that the population remains disease free of all vaccine-preventable diseases through aggressive policies.

b) Working Towards the Unfinished Agenda:

- As a follow-up to a yellow fever outbreak in areas of Paraguay, Argentina, and Brazil in February 2008, Paraguay used VWA to continue a widespread yellow fever vaccination campaign and administered 947,044 vaccine doses to individuals aged 1-59 years. Suriname also engaged in yellow fever activities in the hinterland and vaccinated special risk groups in the coastal area.
- Brazil made use of VWA to conduct a massive seasonal influenza campaign, using the southern formulation of the vaccine, and targeting its population aged >60 years. Brazil's efforts resulted in the vaccination of approximately 14,057,291 individuals. Chile, Paraguay, and Colombia also vaccinated 2,924,779, 470,385 and 257,603 individuals, respectively, with the seasonal influenza vaccine.
- Mexico and El Salvador conducted rubella and CRS elimination campaigns as part of VWA 2008. Mexico's massive national campaign during March and April resulted in 22,197,056 individuals between the ages of 19-29 years being vaccinated. In El Salvador 893,523 individuals between the ages of 12-18 years were immunized.
- Cuba, Colombia, Nicaragua, and Jamaica administered tetanus-containing vaccines to population groups such as children, women of childbearing age, health care workers, solid waste workers, and farmers.
- Panama conducted vaccination campaigns targeting communities along the border region with Costa Rica. Vaccination activities in Bolivia focused on unvaccinated, hard-to-reach populations; the country administered a wide variety of antigens to children and 35,843 doses of Td to WCBAs. In Colombia, vaccination efforts prioritized municipalities in border areas, those with high unmet basic needs, populations displaced by the armed conflict, areas with vaccination coverage <50%, and those in indigenous communities.
- As part of the Month of Vaccination of Indigenous Peoples in Brazil, campaigns focused on reaching hard-to-access indigenous districts in the country; Brazil administered more than 150,000 doses of vaccine and activities took place in 1,107 villages.

c) Meeting Future Challenges:

- Uruguay used VWA as an opportunity to publicize the inclusion of the hepatitis A and pneumococcal vaccines into the national schedule. Chile administered 1,133,558 doses of the pneumococcal vaccine to adults aged >65 years during the national influenza campaign. In El Salvador 4,368 doses of rotavirus vaccine were administered to children aged <6 months.
- During the VWA launching event held in Guabito, Panama, Panamanian Minister of Health, Dr. Rosario Turner, announced the introduction of the Tdap vaccine into the country's national schedule, for adolescents at age 11 and health workers.

VWA in a global context

As VWA has grown over the last six years, the initiative has become a positive force in the promotion of public health diplomacy. Countries and territories have linked and advanced both public health and foreign policy objectives through the implementation of vaccination activities along bi- and tri-national borders. Many activities have additionally required collaboration between governmental sectors such as health, labor, and education, in addition to support from multiple international agencies. VWA has also been successful in placing disease prevention and health promotion high on political agendas. This was evident in 2008 when the president of Panama, Martín Torrijos, traveled to the border of Panama with Costa Rica, not in response to an emergency, but to support the launch of VWA, a week dedicated solely to acts of disease prevention and health promotion.

In other areas of the world, this year's VWA received the endorsement of the Director-General of the World Health Organization (WHO), Dr. Margaret Chan, when she taped a PSA in support of VWA and the European Immunization Week together with both the Regional Director of the WHO Europe office and PAHO's Director. The European Immunization Week celebrated its third anniversary in 2008 and 33 countries participated in this sister initiative, whose timing overlapped VWA. There are plans to link VWA and EIW again in 2009, as well as growing interest from other Regions of WHO, leading to a potential Global Vaccination Week in the near future.

G. THE EPI EVALUATIONS

Grenada — Evaluation of Grenada's EPI was held from 8–25 June 2008. The main objective was to evaluate the EPI programme in all three islands Grenada, Carriacou and Petit Martinique. During the evaluation period, interviews were conducted for users of the health facilities and personnel from all levels of the Ministry of Health using specific targeted questionnaires. Listing of achievements, problems and recommendations was conducted for each evaluation component. Grenada has already implemented corrective measures, such as replacement of cold chain equipment, development of a maintenance plan, designating a health centre as a training site, and installing air conditioning in the central medical storage site.

Guyana — Guyana evaluation was conducted in September with participants from PAHO/WHO and CDC, and EPI managers of the Caribbean. Remarkable progress has been made since the last evaluation in 2000. There is complete access to immunization services to all villages in the interior. Immunization coverage has increased for all antigens to over 90%. EPI manuals have been developed, new vaccines introduced, and staff in remote hinterland areas is committed. Challenges include inadequate human resources, strengthening the cold chain capacity, introducing a proper final waste disposal system, and rehabilitating the physical infrastructure.

COMPLETING THE UNFINISHED AGENDA

H. UNDERUTILIZED AND NEW VACCINES

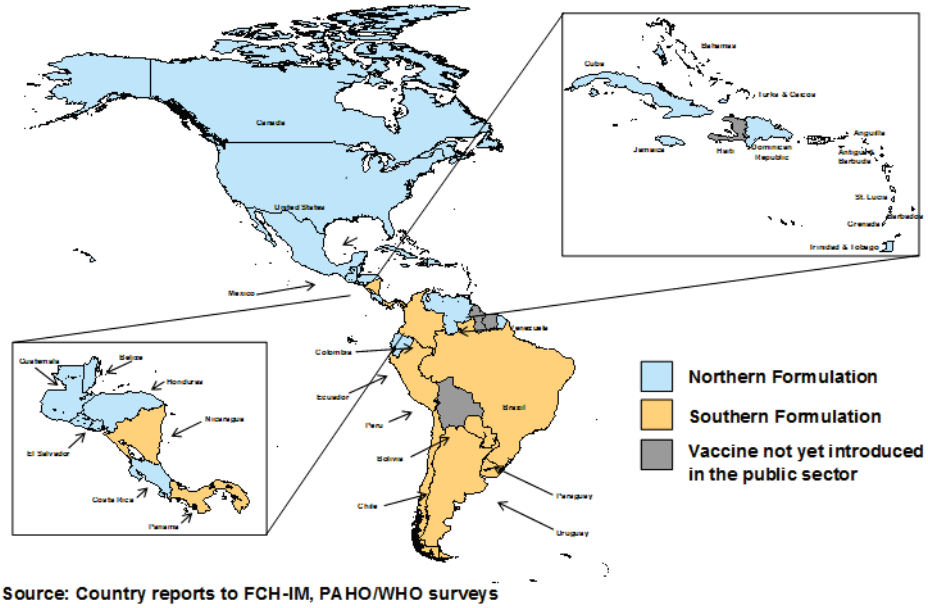
1. Seasonal Uptake of Influenza Vaccine, Regional Perspective, and Preparedness Planning

Seasonal influenza is a viral disease whose annual epidemics are estimated to cause 3 to 5 million cases of severe illness and 250,000 to 500,000 deaths worldwide. Vaccination is the main strategy for primary prevention. Vaccine formulations for both the Northern and Southern Hemispheres are produced annually based on viral surveillance information from WHO's Global Influenza Surveillance Network. In 2003, WHO advocated for nations to increase seasonal influenza vaccination coverage in high-risk groups with a goal of 50% vaccination coverage in populations aged ≥65 years by 2006, and 75% coverage by 2010. In 2004, PAHO's Technical Advisory Group (TAG) issued recommendations for the Americas which were expanded again in 2006. TAG recommended that all countries and territories in the Region establish seasonal influenza vaccination policies and vaccinate individuals with chronic illness, elderly populations, pregnant women, children aged 6-23 months, and health workers. TAG also recommended that countries to strengthen their influenza surveillance systems and generate coverage data and document experiences and lessons learned from targeting high-risk groups.

Over the last half decade there has been a fairly rapid uptake of the seasonal influenza vaccine in the Region. As of 2008, 35 countries/territories administer this vaccine in their public health sector targeting a variety of risk groups; this is compared to the 13 countries and territories that used the

vaccine in 2004. Vaccination in tropical areas remains challenging, however, as knowledge of influenza epidemiology here is less clear than in temperate zones. In the tropical areas of Latin America, a mix of formulations is currently used (Figure 8).

Figure 8. Formulation of Seasonal Influenza Vaccine Used in the Countries and Territories of the Americas, 2008



Source: Country reports to FCH-IM, PAHO/WHO surveys

In terms of vaccine procurement, 30 countries and territories in the Americas currently purchase their seasonal influenza vaccine through the Revolving Fund; in 2008 approximately 14 million doses were purchased. Brazil, Canada, Chile, Mexico, and the United States purchased approximately 152 million doses of influenza vaccine outside of the RF in 2008, for a total of 166 million doses used in the Region.

Moving forward, to optimize the use of seasonal influenza vaccine, there is a need to strengthen epidemiological surveillance, particularly in the area of specimen collection, to improve documentation of coverage, and to work to extend vaccine use to other high-risk groups. For countries without national influenza vaccination policies, it is recommended that the disease burden and the economic impact of the annual epidemics be evaluated as a basis to formulate and apply influenza prevention policies in the context of other national health priorities. Countries should also use the costing and economic analysis tools developed through the ProVac Initiative to assist with building of relevant evidence on this topic.

The increased use of seasonal influenza is anticipated to help countries prepare for a future influenza pandemic. All Caribbean countries have prepared National Influenza Pandemic Preparedness Plans (NIPPP) following a sub-regional workshop. Many of these plans are being incorporated into national disaster plans and 17 countries have had focal point trained in health services strengthening for pandemic influenza. Finally, many countries and territories in the Caribbean have participated in workshops regarding risk and outbreak communication for pandemic influenza preparedness.

RECOMMENDATIONS

- All countries should strengthen the surveillance for influenza and pneumonias.
- EPI Managers of the 7 countries proposed as study sites for enhanced influenza surveillance should be asked to assist in coordinating this study.
- All Ministries of Health of countries should vaccinate with seasonal influenza vaccine according to recent TAG recommendations.

2. Varicella

Varicella vaccine is part of the public sector schedule in two countries. In one country, the vaccine is offered to health care workers. Many countries are desirous to introduce the varicella vaccine in the public health sector, but they have found the cost of the vaccine prohibitive.

CONFRONTING NEW CHALLENGES

III. NEW VACCINE INTRODUCTION IN THE AMERICAS: THE PROVAC INITIATIVE

Vaccination is one of the most cost-effective interventions available in public health. New vaccines like pneumococcal and human papillomavirus vaccines provide new opportunities to countries to reach the Millennium Development Goals and achieve significant reduction in mortality. However, because these new vaccines are more expensive than the traditional EPI vaccines, more evidence is required to make informed policy decisions that justify committing substantial resources to their introduction. PAHO's ProVac Initiative supports countries in their attempts to make informed policy decisions on new vaccines using a broader base of evidence to ensure the technical, operational, and financial sustainability of immunization programmes. To that end, ProVac, supported by a grant from the Gates Foundation, has developed a 5-year plan of action to support countries in this area of work.

A. ROTAVIRUS AND PNEUMOCOCCAL VACCINES INTRODUCTION IN THE AMERICAS: PROGRESS AND LESSONS LEARNT

Rotavirus and pneumococcal infections are the most important causes of diseases in children aged <5 years in countries throughout the world. Rotavirus is responsible for approximately 600,000 deaths and 40% of hospitalizations due to diarrhea in children aged <5 years each year. According to available data, rotavirus causes approximately 75,000 hospitalizations and 15,000 deaths annually in the Region of the Americas. In 2005 WHO estimated that 1.6 million deaths were caused by pneumococcal annually; this estimate includes the death of 0.7-1 million children aged <5 years. Most of these deaths occur in poor countries and children aged <2 years are disproportionately represented among these deaths.

Epidemiological surveillance has been used to establish disease patterns prior to vaccine introduction in national programs and to assess program effectiveness once vaccines were added to the routine schedule. Systematic surveillance of diarrheal diseases due to rotavirus and bacterial pneumonias and meningitis in the Region began in 2003 and 2006 respectively. Eleven countries currently have systematic rotavirus surveillance with information consolidated on a monthly basis on the behavior of the pathogen among diarrheal diseases and 7 countries have bacterial pneumonia and meningitis

surveillance. However, it is fundamental that all the countries of the Region implement rotavirus and pneumococcal surveillance in sentinel hospitals and conduct economic studies on these diseases. Furthermore, as countries decide to introduce the vaccine, processes must be developed to support activities regarding pre-introduction of the vaccine.

Eight countries in Latin American Region have introduced rotavirus vaccine since 2006: Bolivia, Brazil, El Salvador, Ecuador, Mexico, Nicaragua, Panama, and Venezuela. Mexico and Uruguay have introduced pneumococcal conjugate vaccine in 2008.

Countries from the American Region were the first countries to introduce rotavirus vaccine into immunization programs and, in the process, several lessons were learned:

- The experiences shared among early adopters have facilitated vaccine introduction in other countries and the introduction of other new vaccines.
- Regional networks for surveillance and adverse events contribute to providing information in the knowledge and evidence for decision-making.
- Multi-collaborative studies represent an important tool to evaluate effectiveness and safety of new vaccines in developing countries.
- The lessons learned support the strategic vision for new vaccine introduction in the Americas, which is grounded in the sustainability of technical, operational, and financial support.

RECOMMENDATION

- The introduction of pneumococcal vaccine should be governed by the guiding principles of ProVac, which helps ensure sustainable immunization approaches to addressing public health priorities. Surveillance is a key underpinning of this process. The GAVI Alliance has already committed to providing resources to GAVI-eligible countries in the Americas for the introduction of pneumococcal and rotavirus vaccines.

Overview of Rotavirus Surveillance in CAREC Member Countries

Beginning in 2004, sentinel surveillance for rotavirus infection has continued in three Caribbean countries: Guyana, St. Vincent & the Grenadines, and Suriname (Trinidad & Tobago also participated for one year). This surveillance has focused on identifying 3 factors in each country: the burden of gastroenteritis among children age 0-5 years; the burden of rotavirus infection in this same age group; and the rotavirus subtypes circulating in each country. For the study period, gastroenteritis accounted for 4 to 11% of outpatient visits and approximately 18% of inpatient visits. Rotavirus infection was the cause of 21% of all gastroenteritis in the three countries. The most common rotavirus subtypes found in the countries was G1P[8]. This subtype is also the most common subtype globally as well as the principal component of both rotavirus vaccines. Other non-vaccine subtypes, however, were the dominant subtypes at various times in the countries, raising concerns about the efficacy of the vaccine against these non-vaccine subtypes.

RECOMMENDATION

- Feasibility and cost-effectiveness studies should be undertaken to gather appropriate evidence to inform decisions regarding rotavirus vaccine introduction.

- Given the challenges associated with the collection of stool samples in general, extra effort should be made to send stool samples for laboratory testing, including rotavirus. Stool samples that test positive for rotavirus should be sent to CAREC for serotyping.

B. PNEUMOCOCCAL SEROTYPES & ANTIBIOTIC RESISTANCE IN CAREC COUNTRIES (1999–2007)

The invasive bacterial infection surveillance (IBIS). initiated in 1998, was implemented in 5 countries of the sub-region. The focus of the surveillance was on invasive bacterial diseases, mainly pneumonia, meningitis, and septicemia. In 2000, countries were required to report, weekly and annually, all cases of bacterial meningitis, Hib meningitis, *Neisseria meningitidis* meningitis, non-specific meningitis, bacterial pneumonia, streptococcal pneumonia, and Hib pneumonia. In addition to reporting, countries are referring pneumococcal isolates for characterization or serotyping.

The data garnered from the Caribbean can be used to address the following questions: (1) Does the Caribbean need to adopt the pneumococcal conjugated vaccine for children aged <2 years? and (2) Would the current 7-valent vaccine be effective against the serotypes currently circulating in the sub-region?

An examination of 276 clinical specimens containing *Streptococcus pneumoniae* shows that antibiotic resistance is a growing problem in the Caribbean. Among children age <6 years, which includes the target population for routine immunization, 34% of isolates were partially or completely resistant to penicillin. For older children in the 6 to 14 year-old age group, resistance was even higher, at 63%. In addition, this age group also showed the greatest increase in resistance over the 7-year period of surveillance. In general, antibiotic resistance was greater in specimens from children than from adults.

The most common serotype found in the Caribbean specimens was 14, which was the most common serotype among all age groups. The next most common serotypes were 6B and 23F. All three of these serotypes are found in the 7-valent vaccine. Overall agreement between the circulating serotypes and the vaccine serotypes was highest for younger children, 79%, and for older children, 72%.

Two countries have implemented routine use of the 7-valent conjugate vaccine and two will be introducing the vaccine during the first quarter of 2009. Some countries are introducing the vaccine for at-risk populations. The major limitation to routine use of the 7-valent conjugate vaccine in childhood EPI programmes is its cost. In most other countries, the conjugate vaccine is available in the private sector for those with the ability to pay.

RECOMMENDATIONS

- Every effort should be made to ensure that all admitted suspect cases of pneumonia with bacteremia have a blood culture and sensitivity (c/s) and chest X-ray (CXR) done (usual management) prior to antibiotic treatment. All suspect cases of bacterial meningitis should have blood c/s and CSF gram stain and c/s.

- All isolates of Hib, *Streptococcus pneumonia* and *Neisseria meningococcus* should be referred to CAREC for characterization (serotyping) if this cannot be done at country level. Where these tests can be performed in country, then the summary results should be forwarded monthly.

- The sub-region should rationalize the use of the pneumococcal conjugate vaccine for high-risk children.

- Surveillance should continue to assess circulating types and antibiotic resistance patterns.

Plans for the introduction of the Pneumococcal Vaccines

Guyana — Guyana plans to introduce the pneumococcal vaccines into its national immunization programme in 2009. A proposal has been prepared and approved by GAVI in 2008. An implementation plan has been prepared and focuses on training, cold chain, resources, and other necessary supplies.

Barbados — Barbados decided to introduce the conjugate pneumococcal vaccine into the regular schedule for all new babies. The steps leading up to commencement of vaccine delivery were outlined and included the sensitization of the public and staff, enhancing the relationships with the private sector, arranging the ordering and paying for the vaccine, and preparing guidelines for improved surveillance and use of the vaccine. As a consequence of this decision to introduce the vaccine, several other changes had to be put in place. They included changes in the immunization schedule to align it with the times the vaccine is administered internationally and a revision and renewal of the take home card for children.

C. HUMAN PAPILLOMAVIRUS VACCINE USE

Cervical cancer mortality rates in countries of the Caribbean rank among the highest in the world. Two safe and efficacious vaccines are now available. There exists this opportunity with new vaccines and screening approaches to improve comprehensive cervical cancer prevention and control. Modeling data suggest that targeting girls aged 9-12 years and screening all women at ages 35, 40, and 45 (3 times per lifetime) may reduce lifetime risk of cervical cancer by 60% in a country such as Brazil.

Cost-effectiveness analysis suggest that, at US $5 a dose, HPV vaccine introduction may be cost-saving in many countries. Countries are positioning themselves to sustainably introduce the HPV vaccine while strengthening secondary screening strategies. Cervical cancer prevention and control must be a high priority programme since cervical cancer is a leading cause of mortality and presents a high burden of disease. HPV vaccination as a primary prevention strategy should be used as a catalyst to improve the programme and ensure that necessary conditions for its introduction will be supported by all governments.

Against this background, the Caribbean countries are planning the following:

- To undertake specific cost-benefit, cost-effectiveness, and cost of illness studies to generate a sub-regional perspective on the pertinent issues;
- To undertake HPV DNA prevalence studies in the general populations of women residing in Jamaica;
- To evaluate HPV type-specific prevalence in a consolidated Caribbean sample of cervical cancer cases, utilizing tissue blocks from cancer registries and pathologists.

RECOMMENDATION

- PAHO's Regional Comprehensive Family Immunization Project should mobilize resources through ProVac and other sources to assist the sub-region with gathering the required evidence for informed decision-making regarding HPV vaccine introduction.

Results of Cervical Cancer/HPV Study in Trinidad and Tobago

The Ministry of Health of Trinidad and Tobago has recognized cervical cancer as a major public health problem and is implementing a comprehensive prevention programme. Information on the prevalence of HPV genotypes in the population is not available and the study will be timely in supporting the development of policies for cervical cancer prevention and control.

A national survey of women aged 18–64 years was deemed an appropriate means of obtaining this information. A pilot study was undertaken to provide data to (1) calculate the sample size for the national study; (2) assess the performance of the laboratory testing procedures; and (3) test study logistics.

Materials and Methods: Three sites were conveniently chosen for the pilot study. These were Arima and Santa Cruz Health Centres and UWI - St. Augustine Campus. For the pre-enrollment procedure, participation in the study was voluntary. All participants were first interviewed to assess eligibility for inclusion. Issues of confidentiality of results were discussed and consent forms signed.

Sample Collection: Two cervical samples were taken from each client in the study, the first for the Pap smear (Andwin Scientific no touch one slide Pap smear kit) and a second for HPV testing (hc2 DNA collection device). The specimens would be transported directly to the Molecular Biology Laboratory.

Study population and sample size: 310 sexually active women between the ages of 18-65 years (mean age 34.9yrs.). Study population was fairly evenly distributed among the 3 localities.

Results: The HPV positive samples were grouped into (a) High risk, if at least one high-risk genotype was detected; (b) Low risk, if no HPV high-risk genotype was detected; and (c) Unknown risk category, if genotypes of unknown risk were detected.

PAP Smear and HPV test results: Of the total 310 smears done, 294 smears were deemed satisfactory. Of these, 279 (94.9 %) had normal cytology. Fifteen women (5.1%) had abnormal cytology and of these (20%) were classified as ASCUS, 11(73%) were LSIL, and 1 (7%) as HSIL, using the Bethesda System for reporting Cervical Cytology. Overall prevalence of HPV infections with high, low, and unknown risk types was 40.6% (126/310). The categories were: high risk, 66%; low risk, 13%; and unknown risk, 21%.

Conclusion: This pilot study suggests that Trinidad and Tobago may have a very high prevalence of cervical HPV infections. The relative importance of HPV types with and without cervical lesions needs further investigation in Trinidad and Tobago and the wider Caribbean in general.

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HPV Knowledge Attitude and Practice Studies: Grenada and Guyana

During the immunization evaluation exercise of two Caribbean countries, a user survey was conducted and included information on the knowledge of HPV infection and its sequel (genital warts, HPV vaccine, cervical cancer) and utilization of pap smear tests. A comparison of the two countries was done.

The findings revealed that most respondents have not heard about HPV, but those who had, linked it to cervical cancer in one country and STI in the other country. Most respondents have not heard about genital warts. Those who had, said that these are sores in the genital area or that it is an STI. There is insufficient knowledge about the main risk groups to contract HPV and genital warts, how the diseases are contracted, and how they may be prevented in both countries. Most respondents in both countries have not heard about the vaccine (Gardasil), but there was twice the knowledge in one country than the other. About two-thirds of the respondents have heard about cervical cancer and almost all are interested in receiving a vaccine to prevent cervical cancer and would allow their daughters to receive the vaccine. There is some knowledge about how to prevent cervical cancer and this was twice that in one country than the

other. Most respondents in one country confirmed that they have had a PAP-smear test before, while less than a third had a pap smear in the other country.

Recommendations

- Increase health information on HPV and genital warts especially on the main risk groups and on how to prevent HPV infection.
- Increase information on cervical cancer, its prevention, screening, and the role of vaccines and adapt to the country.
- Strengthen the cervical screening programmes in both countries, but especially in the second one where coverage is low.
- Initiate actions to move towards the inclusion of the HPV vaccine as a part of the cervical cancer screening prevention programme.

Experiences from HPV Vaccine Introduction

USA — This presentation was an overview of HPV vaccine introduction and monitoring in the United States. The current recommendations by the US Advisory Committee for Immunization Practices (ACIP) for routine HPV vaccination of females 11-12 years with catch-up in females 13-26 years and the rationale for the recommendations were discussed. Twenty million vaccine doses have been distributed throughout the US as of September 2008. Free HPV vaccine is available in all states for children under 19 who are eligible for the Vaccines for Children (VFC) entitlement program. Alternatives to the traditional primary care settings for vaccine delivery are being considered in order to reach the maximum number of the adolescent target group. Results of a survey of pediatricians suggest that the majority of pediatricians (94%) will recommend the HPV vaccine to their 11-12 year old female patients, but that most pediatricians are likely to make stronger recommendations to their older female patients (13-18 year old). Results of a survey of caregivers in North Carolina indicate that less than 1% of caregivers who did not vaccinate their daughters cited concern about HPV vaccine making teenage girl more likely to have sex, and even fewer reported cost, insurance issues, or vaccine safety as main reasons for not vaccinating.

Preliminary data from the National Immunization Survey suggest that an average of 25% of 13-17 year old females had at least initiated the HPV vaccine series in 2007. Data from six sentinel vaccine surveillance sites showed that HPV vaccination reporting steadily increased from <1% in 2006 to approximately 12% in all eligible 11-18 year-old females through the last quarter of 2007. Vaccine coverage will continue to be assessed through national surveys and vaccine registries. Vaccine adverse events are monitored in the US through a combination of passive and active surveillance systems. To date, no serious adverse events have been associated with the HPV vaccine in the US. Potential changes in patient behaviors and provider practices related to cervical cancer screening will be evaluated on an ongoing basis through national surveys and special studies. Finally, the monitoring HPV-related disease outcomes including cervical cancer, cervical precancerous lesions, and associated HPV types, other HPV-associated anogenital cancers, genital warts, and type-specific HPV prevalence is ongoing using existing and new population-based monitoring systems.

Bermuda — Cancer is the 2nd leading cause of death among women in Bermuda. Of these deaths, 6% affect the female genital organs. Breast and cervical cancer preventive services exist and include tracking, referral, and follow-up. Protocols exist for cervical cancer screening for all women and special interest groups. There was support from the medical practitioners to have HPV vaccine available based on the presence of high-risk HPV identified in cervical screening results. Lobbying with insurance companies for policy coverage was successful. The vaccine was made an optional vaccine in the EPI schedule in 2007 and recommended for females aged 11–12 years. Inclusion to the full schedule is pending an evaluation of the cost burden of the

disease for colposcopic procedures. A total of 546 and 467 vaccine doses were distributed in 2007 and 2008, respectively. No adverse events have been reported to date.

The Prevalence Study of High-Risk HPV Types Among Women in Trinidad and Tobago Pilot Phase 2007

Cervical cancer is a public health challenge in Trinidad and Tobago. The advent of an HPV vaccine approved by the FDA and the growing interest of the population in HPV and the vaccine, stimulated the development of a partnership among the Ministry of Health, the Caribbean Epidemiology Centre, The University of the West Indies (Eric Williams Medical Sciences Complex), the Trinidad and Tobago Cancer Society, and the Public Health Agency of Canada to carry out a study. The study aimed at determining the high-risk HPV types prevalent in the female population. To prepare, a precursor pilot study was undertaken to assist in the calculation of sample size, refine study logistics, and assess laboratory readiness.

A convenience sample of three hundred and ten (310) women, between the ages of 18 and 65 years, from three different sites, was enrolled in the study. Pap smears and materials for HPV studies were taken. The PAP smears were read in Trinidad as were the HPV Digene and PCR. The PCR was repeated in Canada where DNA sequencing was also done. All participants received their results and those requiring follow-up received, and kept, appointments with the gynaecologist.

Purchase of equipment and laboratory consumables as well as payment of staff amounted to approximately US $80,000. The study is on schedule and the final report will be available by March 2008, as planned. The results will be disseminated locally and published internationally.

IV. OTHER TOPICS

A. EPI MEETING OF ARUBA AND THE NETHERLANDS ANTILLES

The EPI meeting was held on the island of St. Eustatius, during the 10-11 July 2008.

Objective: *EPI Managers of Aruba and the Netherlands Antilles will share and exchange experiences regarding vaccination activities for the period from November 2007 to June 2008, and will review challenges ahead in 2008 and 2009.*

EPI managers discussed achievements and challenges faced up to the time of the meeting and came up with suggestions for the remaining period of 2008 and 2009. Meeting participants resolved to change the age of MMR administration from 14 months to 12 months and MMR2 from 9 years to 4 years, in keeping with the immunization schedule of the Caribbean islands.

VWA activities will be carried out on all islands in 2009.

B. TRANSITION TO FAMILY IMMUNIZATION

Antigua and Barbuda — Antigua and Barbuda is committed to the transitioning to Family Health. Of utmost priority to the sub-region is the Family Health Strategy and the region is poised to implement and develop national programs to achieve the Millennium Development Goals by 2015. This is included in the Family Health Strategy as a guiding operational tool to achieve these goals. With this in mind, Antigua and Barbuda's Family Health/Maternal and Child Health Committee was officially re-activated on 24 January 2006. Sub-Committees were subsequently formed based on the components of the Family Health Strategy and expertise of the various stakeholders.

Achievement to date include Training in the Perinatal Information System (SIP), piloting of SIP programme to be done in selected clinics in 2009, training in the WHO New Growth Chart, Completion of Chart Audit on the quality of case and treatment of patients with chronic non-communicable disease, Completion of Policy and Legal Framework for Early Childhood Education, and an oral health survey was conducted. Antigua and Barbuda is committed to the health and welfare of the family from the 'womb to the tomb.'

Bermuda — Health Promotion is the most significant vehicle to promote health, and in particular family health. "Well Bermuda", a national health promotion strategy, and its initiatives, provides a unifying vision for all partners in public health, whether they be public or private, to not only have the same focus, but to also realize the same goals. "Well Bermuda", with its three themes, Healthy People, Healthy Families, and Healthy Communities, continuously recognizes that we must seize every opportunity to improve the health of our families and our communities. The use of immunization schedules for infant/child, adults, and seniors, provides an excellent opportunity, once again, for health promotion.

Jamaica — Transition to Family Health is in keeping with paradigm shift and new priority direction for the Caribbean Cooperation in Health. A compartmentalized Primary Health Care System with a strong focus on maternal and child health and the health of the environment will no longer be all encompassing of health. United Nations and International Summit Declaration stipulate that countries should seek to develop policies and laws that support and contribute to the family and its stability; promote equality; identify objectives and actions of direct relevance to the family; stress family role in promoting health and the need to reorient services with a family focus; and demonstrate growing need and recognition for a new social and health agenda for families.

Transitioning to family is important in order to protect more persons at risk and to ensure the health and welfare of all members of the family for sustainable development because of the impact of illness on the family especially the nurturers and family providers/breadwinners. Challenges for transitioning to family immunization include commitment from Government to increase the health budget to enhance/strengthen priority health programmes, including immunization. The threat to the PAHO Revolving Fund, accessing the various vaccines at best price for all CMCs, is an issue that will need to be resolved, especially during the transition to family health, at the time new vaccines are being introduced that are costly for all countries. Strengthening routine childhood immunization, considering new technologies, strengthening stakeholder commitment, and expanding immunization service delivery to new groups are some of the strategies used in Jamaica.

C. VACCINATION COVERAGE SURVEY: ST. MAARTEN

Because the exact target population for immunization in St. Maarten is not known, two vaccine surveys were conducted to more precisely estimate the vaccine coverage among children on the island. The methodology used for these surveys, based on the WHO-recommended "30 x 7" two-stage random survey method, is the same that has been used in other territories of the Caribbean and will therefore be of interest to other islands that are planning to conduct similar surveys. As its most basic form, this method involves randomly selecting 30 small districts in the country and then randomly selecting a beginning point within that district. Seven children are then selected in a systematic fashion. For each child, the date of immunization for each vaccination is recorded on the survey form. For those children who have missed vaccine doses, the stated reason for missing the vaccine is recorded. The primary form of analysis is the formation of cumulative vaccination curves by week of age for the first two years of life. Because not all children complete two years of experience before they are interviewed, these curves are based on life table methodology to correct for changes in the number of children under observation during the second year of life. Use of this methodology also allowed for the construct of two quantitative measures of vaccine coverage in addition to the usual measure of vaccine coverage at one year and two years of age.

D ANTHROPOLOGY STUDY ON NEONATAL TETANUS

A medical anthropology study was implemented on traditional practices of the Maroon population in the hinterland and some suburban areas in Suriname regarding the treatment of the umbilical cord in newborns. The main focus of this study was on the application of traditional substances on the umbilical stump and the rationality behind the use of those substances.

The study found that cord care practices exist from birth and before, during and after umbilical cord drops. The umbilical cord is cut with available cutting tools and tied off with cotton threads. Several substances abstracted from different types of materials are applied to treat the stump in newborns, for example substances abstracted from nature (plants, trees, soil, animals) or from materials used in daily household activities (salt, blue block soap, baby powder, [powder of] white chalk, [ash of] cork, ash of paper materials or combinations of these substances).

The main reasons for using the kind of materials were that they are powerful in drying and cutting the umbilical cord within an average period between two to four days and in fast healing of the umbilical stump. Tradition, cultural knowledge, and experience with effects of substances were the main decisive factors in using them. Altering composition of traditional substances was not favored due to believe and faith in traditional substances, concerns about the availability of bio-medical substances, fear of the negative effects of mixing tradition and modern practices, and unwillingness to be used as experimental subjects. Willingness was expressed to use additional antibiotics provided by health professionals while keeping the own traditional methods. 'Antibiotics' were viewed as effective and good medication.

The study recommended providing a bio-medical substance that cuts the cord in very short period of time (2-4 days), preferably a colored (black, white, blue or yellow) powder or paste. An open, non-judgmental approach and communication with specific target groups along with practical and useful information campaigns about NNT, symptoms and possible causes of the disease, would also be helpful to guide the Maroon population to adapt their cultural practices to safe and hygienic treatment of the umbilical stump. If possible and feasible, samples of current traditional substances or the materials used to abstract substances should be taken and tested on spores of the *Clostridium tetani* bacteria.

E. NEW TOOLS: GEOGRAPHIC INFORMATION SYSTEMS

The participants were provided with a brief overview of the uses of a GIS software package (how to link a map with data), which could support both coverage and surveillance information for the immunization program. Participants from countries were firstly given a practical demonstration on the use of the SIGEPI and this was followed by 'hands on' exercises.

V. SURVEILLANCE AND IMMUNIZATION AWARDS

An annual **Caribbean Surveillance Award** has been established to recognize countries that have performed outstandingly on the surveillance component of their program during the previous year. The Award is based on two main criteria, namely, on-time reporting and the percentage of sites reporting to CAREC. The Award consists of a certificate and the inscription of the name of the country on a plaque that is kept by the winning country during the following year and until a new country is selected to receive the award. The Award is announced during the annual Managers' meeting.

Turks and Caicos is the recipient of the 2008 Surveillance Award. Awards for the second and third places went to **Bahamas Islands** and **Dominica,** respectively.

The Henry C. Smith Immunization Award is presented this year to **Bermuda**. The award is in honour of Mr. Henry C. Smith, who was the first PAHO-EPI technical officer for the Caribbean sub-region. His service in the region spanned 18 years. The immunization trophy is awarded to the country that has made the most improvement in EPI. A special certificate of recognition for on time reporting of surveillance of rotavirus and other vaccine-preventable diseases was given to **St. Vincent and the Grenadines**.

Participants at the 25th Caribbean EPI Managers' Meeting sincerely congratulate these countries for being the recipients of awards and extend their compliments to all their health workers for such outstanding performances.

The 26th Caribbean EPI Managers' meeting will be held in November 2009.

A N N E X 1

The Nassau Declaration for Sustaining Immunization Programmes in the Region of the Americas

The 25th Caribbean EPI Managers' Meeting in Nassau, Bahamas, 2008:

Noting:

- The long-standing model of successful technical cooperation represented by the outcomes of this meeting over the years between the countries of the Caribbean and the Pan American Health Organization;
- The historic achievements of the Expanded Program on Immunization in the Caribbean and Latin America in eradication of polio, elimination of measles, rubella and its major sequel, congenital rubella syndrome;
- The virtual elimination of diphtheria, pertussis, neonatal tetanus, thereby preventing significant morbidity and mortality among children, and the maintenance of a disease-free status of yellow fever in most of the countries in the endemic zone;
- The simultaneous introduction of vaccines such as Hepatitis B and *Haemophilus influenzae* type b, further substantially reducing the morbidity and mortality of these diseases;
- The epidemiological situation, where the countries of the Caribbean have critical need to introduce new vaccines, such as those against pneumococcus, rotavirus, and human papillomavirus;
- The importance of the Revolving Fund for purchasing EPI vaccines and related supplies as a mechanism of cooperation among countries of the Region and PAHO that has permitted opportune access to high-quality, affordable vaccines;

Urges governments of the Region to maintain their commitment to the Revolving Fund as a mechanism of cooperation grounded in equity for all communities and solidarity among all countries.

Strongly requests that PAHO Secretariat maintain the guiding principles of the Revolving Fund which embrace a single price for all countries using the Revolving Fund, as well as the lowest price available, which together will continue to guarantee an uninterrupted supply of safe and high-quality vaccines to Member States.

Also, calls upon PAHO to maintain the dialogue with other institutions and organizations participating in the field of vaccine procurement and support to developing communities of the world, always having the commitment to maintain the long-standing guiding principles of the Revolving Fund.

Signed

Ms. Gracita Christopher _____
ANGUILLA

Ms. Jean V. Martin _____
ANTIGUA/BARBUDA

Dr. Johannes Hubert _____
ARUBA

Ms. Amelia Collie _____
BAHAMAS

Dr. Elizabeth Ferdinand _____
BARBADOS

Ms. Eufemia Waight _____
BELIZE

Ms. Lynn Jackson _____
BERMUDA

Ms. Giselle Quiros-Blanco Coffie _____
BONAIRE, N.A.

Dr. Mary Louise Feliz
CURACAO, N.A. _____

Ms. Vilma Bruney
DOMINICA _____

Ms. Monica Mungo
GRENADA _____

Dr. Janice Woolford
GUYANA _____

Dr. Yvonne Arlene Munroe-Whitmore
JAMAICA _____

Dr. Daniel Vigée
MARTINIQUE _____

Mrs. Joan Moinnodeen
MONTSERRAT _____

Ms. Carol Jack-Roosberg
ST. EUSTATIUS, N.A. _____

Ms. Marguerite O'Brien-France
ST. KITTS/NEVIS _____

Ms. Kerthney Surage
ST. LUCIA _____

Dr. Rachel Louise Eersel
ST. MAARTEN, N.A. _____

Ms. Ferosa Roache
ST. VINCENT & GRENADINES _____

Dr. Soekirman Sabiran
SURINAME _____

Dr. Kumar Sundaraneedi
TRINIDAD AND TOBAGO _____

Ms. Farida Hussain
TURKS & CAICOS ISLANDS _____