



Comprehensive Family Immunization Unit
Department of Family, Gender and Life Course



TWENTY-NINTH MEETING OF THE CARIBBEAN EPI MANAGERS

FINAL REPORT

Runaway Bay, St Ann, Jamaica
19 – 21 November 2013

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Twenty-ninth Caribbean EPI Managers' Meeting

1. Introduction

The 29th Caribbean EPI Managers' Meeting was held at the Jewel Runaway Bay Hotel in Runaway Bay, St. Ann, Jamaica, from 19 – 21 November 2013. The meeting convened over 90 participants from 30 countries. Participants included representatives from the Ministries of Health, the Pan American Health Organization/World Health Organization (PAHO/WHO), and the Caribbean Public Health Authority (CARPHA). Dr. Jean Dixon, Permanent Secretary, Ministry of Health, chaired the Opening Ceremony.

Mr. Graham Jones rendered the National Anthem of Jamaica, followed by Rev. Veronica Thomas, with the prayer. Welcome remarks were then given by Dr. Kam Suan Mung, Acting PAHO/WHO Representative, Jamaica, and Dr. Martha Velandia, PAHO/WHO Immunization Advisor. In their remarks, both Drs. Mung and Velandia highlighted the key role that Jamaica played during the 52nd PAHO Directing Council in support of resolution CD52.R5 (2013), which endorsed the mechanisms and procedures of the PAHO Revolving Fund for Vaccine Procurement.

In his remarks which followed, Dr. Kevin Harvey, Chief Medical Officer of Health (Acting), Ministry of Health, Jamaica, pointed out that collaboration between countries with respect to strengthening of their immunization programs is a step in the right direction, as all countries benefit from sharing experiences and best practices. He commented that the topics of discussion during the meeting are of particular relevance for the Caribbean. Dr. Harvey also mentioned that the countries have all had tremendous support from PAHO over the years and that he looks forward to a continuation of that going forward. He explained that Jamaica is party to the Global Vaccine Action Plan 2011-2020, which was endorsed by the WHO Member States at the World Health Assembly in May 2012 and seeks to prevent millions of deaths by 2020 through more equitable access to existing vaccines for people in all communities.

In the final keynote address, the Honorable Dr. Fenton Ferguson, Minister of Health, Jamaica expressed Jamaica's pride in being chosen to host the meeting. Dr. Ferguson observed that the Region of the Americas, and the Caribbean in particular, have been world leaders in disease elimination through vaccination, having been the first in the world to eradicate poliomyelitis and to eliminate measles and rubella. He also pointed out that these gains can be easily wiped out if all countries do not take the necessary precautions and do not advance the EPI forward to meet collective goals. He observed that the 29th Caribbean EPI Managers Meeting is an opportunity to share ideas and information to strengthen immunization programs, especially in the context of the Region's goals to certify the elimination of measles, rubella and congenital rubella syndrome (CRS), as well as to maintain its polio eradication status.

2. Objectives of the Meeting

The objectives of the 29th Annual Meeting of the Caribbean EPI Managers were:

- 1) To analyze the status of the EPI program in each country and to identify areas that require strengthening;
- 2) To update information on selective scientific topics of common interest to countries in relation to immunization, service delivery and surveillance of EPI diseases;

- 3) To set the targets and objectives of each country with respect to immunization coverage and reduction of morbidity and mortality from the EPI diseases for the year 2014;
- 4) To develop an action plan with a specific budget for each country, to achieve the targets and objectives set for 2014;
- 5) To discuss the status of verification of measles, rubella and CRS elimination in the Americas and the implementation of Resolution CSP28.R14 “Plan of Action for maintaining measles, rubella, and CRS elimination in the Region of the Americas”;
- 6) To discuss how to sustain the eradication of wild poliovirus in each country;
- 7) To discuss the status and advances made in the surveillance and management of vaccine-preventable diseases and adverse event following vaccination;
- 8) To assess the status of the introduction of new and underutilized vaccines such as seasonal influenza, pneumococcal, rotavirus and HPV vaccines in the national immunization schedules of countries in the sub region, including strengthening of the pertinent surveillance/monitoring systems;
- 9) To develop mechanisms to advocate for the introduction of pneumococcal and HPV vaccination in countries which have not yet introduced these in their program; and
- 10) To inform participants of the recommendations coming out of the XXI Technical Advisory Group on vaccine-preventable diseases (TAG) Meeting, held in Quito, Ecuador in July 2013.

After the Opening Ceremony, Dr. Peter Figueroa, TAG Member, chaired the meeting.

Summary of Workshop for EPI Managers

Preceding the meeting, on 18 November, a workshop was convened for the EPI Managers, to update them on new developments and techniques with regard to planning, implementation and evaluation of the EPI, as well as in the area of disease surveillance. Workshop topics included the principles, components and tools of the EPI Plan of action; forecasting and management of vaccines and supplies, including use of PAHO Form 173; vaccine cold chain - temperature monitoring in outreach and clinic settings; planning new vaccine introduction; the WHO/UNICEF Joint Reporting Form (JRF); calculation of denominators, coverage, and drop-out rates; laboratory specimens, transportation and CARPHA logistics; events supposedly attributable to vaccines and immunization (ESAVI); and weekly surveillance reporting, ISIS, and case investigation reports. A complete report of the workshop can be found in Annex 1.

3. Overview of the Immunization Program

3.1. The Global Vaccine Action Plan and the Immunization Program in the Americas.

The number of vaccine-preventable disease (VPD) cases in the Americas has declined significantly since 1980 when almost 400,000 cases of VPD were reported. In 2012, only 45,000 were notified. This reduction in cases was achieved through sustained high immunization coverage. Nevertheless, across the Region this coverage is not homogenous, especially in the interior of countries at the local level. As of 2012, 50% of the municipalities have coverage for DPT3 under 95% and 61% of the children in the region less than one year of age live in these municipalities.

The Americas has been a leader in many areas, including the implementation and evolution of Vaccination Week in the Americas, PAHO's Revolving Fund, and the sustainable introduction of new vaccines. Ninety percent (90%) of the birth cohort in the Region (60% in LAC) live in countries that have already included the pneumococcal vaccine as part of the routine EPI; 87% of the birth cohort (60% in LAC) lives in countries that already use rotavirus vaccine; and 58% of girls 10 - 14 years old live in countries that have introduced the HPV vaccine.

In 2012, the World Health Assembly approved the Global Vaccine Action Plan (GVAP) and a Resolution declaring the completion of polio eradication as a programmatic emergency for global public health. PAHO has also recently adopted a new organizational strategic plan for 2014-2019. In order to accommodate the areas of work contained in these documents, PAHO is in the process of revising the RIVS and developing the Regional Vaccine Strategic Plan (RVASP 2015-2019). This plan will contain 4 strategic areas:

- Protecting the achievements,
- Meeting new challenges,
- Completing the unfinished agenda
- Strengthening health services for effective immunization service delivery in order to underline the importance of immunization as part of routine health services.

Ongoing challenges in the Region are:

1. Maintaining immunization within the political and social agenda
2. Strengthening the role of immunizations as a fundamental pillar and entry point for primary health care
3. Continuing to reach the unreached above and beyond what we do now
4. Finalizing and implementing the RVASP
5. Continuing to strengthen national programs with a vision of technical excellence supported by evidence-based decisions.

3.2. Summary of 2013 TAG Recommendations

The XXI Meeting of PAHO's Technical Advisory Group (TAG) on Vaccine-preventable Diseases was held in Quito, Ecuador from 3-5 July 2013. TAG was originally established in 1985 to set forth evidence-based strategies for polio eradication. Since then, it has progressively expanded its mandate to the current aim of strengthening the immunization policy dialogue among key stakeholders in the Americas involved in efforts to control VPDs. TAG functions as the leading regional forum to review and promote regional goals and strategies for immunization.

TAG recognized the efforts of the countries in the Region to join global efforts to extend the benefits of immunization to all individuals through the GVAP, as well as the progress of Haiti's immunization program. Countries were also commended for submission of the final verification of elimination of measles and rubella reports ahead of the December 2013 schedule.

The TAG reiterated its recognition of the Revolving Fund as a pillar of the immunization programs and reconfirmed its prior recommendation on the importance of country participation. PAHO will continue work to strengthen the operating and financial management of the Fund in order to provide increasingly better service and greater capacity to extend credit to participating countries and territories. PAHO will also maintain communication and coordination with the main partners in the global field of immunization, to take advantage of opportunities and meet the challenges of the global vaccine market. TAG also

ratified the importance of developing regional vaccine production capacity and recommended that countries ensure more accurate demand forecasts.

Countries are recommended to use whole cell pertussis vaccine due to waning immunity associated with acellular pertussis vaccine and should achieve coverage of > 95% in all municipalities and strengthened surveillance. Outbreaks should be investigated and vaccination should occur for pregnant women only in areas affected by the outbreak. Initiation of the schedule may begin at 6 weeks during an outbreak.

There is evidence that one dose of yellow fever provides life-long immunity. However, until International Health Regulations changes have been made, booster doses will be required. Risks and benefits should be assessed for special populations including HIV positive persons with CD4 < 200, pregnant and lactating women and persons > 60 years. Yellow fever and MMR can be simultaneously administered.

A 2nd dose of MMR is recommended at 15 to 18 months as well as verification of childhood immunization status at school entry to ensure high coverage. Coverage > 95% should be maintained for MMR2.

Pregnant women were emphasized as a key priority group for vaccination against seasonal influenza. More research is required to identify barriers affecting the uptake of influenza vaccine for health care workers. Monitoring coverage and influenza vaccine effectiveness to assess impact is required.

For new vaccines, TAG recommended 2- and 3- dose extended HPV immunization schedules for girls 9 to 13 years as they can offer immunological, programmatic and financial advantages. However, TAG recognized the need to gather data on a longer term for the 2 dose schedule. Pneumococcal vaccine should be introduced into the routine vaccination schedule in all countries. The benefits of herd immunity include the elderly. Strengthening of surveillance for invasive pneumococcal bacterial disease is required. There is insufficient evidence regarding the use of PPV23 in high risk adults and conjugate pneumococcal vaccine for adults is not recommended. Surveillance for meningococcal disease is required to determine the burden of disease prior to vaccine introduction. Countries with a high burden of meningococcal disease should target < 1 or < 2 years and include a catch up campaign of children and/or adolescents.

There is a need to establish a Regional Network of Vaccine-Preventable Disease Laboratories. Standardized testing and quality assurance is required to strengthen programs. Each country should have an immunization registry and innovative mobile technologies should be explored for strengthening information systems.

Conditions set by SAGE for the cessation of the use of OPV2 must be met before changes in the vaccination policy. TAG has set up a working group to develop a strategic plan for implementing the polio endgame in the Americas. AFP surveillance must be maintained. Countries considering IPV introduction must meet the pre-conditions set by TAG in 2011.

3.3. Status of immunization in the Caribbean

The Governments and peoples of the Caribbean Community are committed to the sustainability of the immunization program which is so far the most successful health intervention. Strategic planning and implementation, monitoring and evaluation have added to its success. Completing the activities of verification and documentation of elimination of measles, rubella and CRS in the Caribbean countries was one of the main achievements of the previous year.

The year 2012 has been full of challenges, including the need to maintain current services while implementing activities related to the transfer of the sub regional EPI office from CAREC to the PAHO Representation in Jamaica as of January 1st, 2013. A Short Term Consultant was contracted to assist the Immunization Program from May 1, 2012 until December 15, 2012. This consultancy continued as the Caribbean Sub Regional Coordinator for the EPI, in the PAHO/Jamaica over the course of 2013.

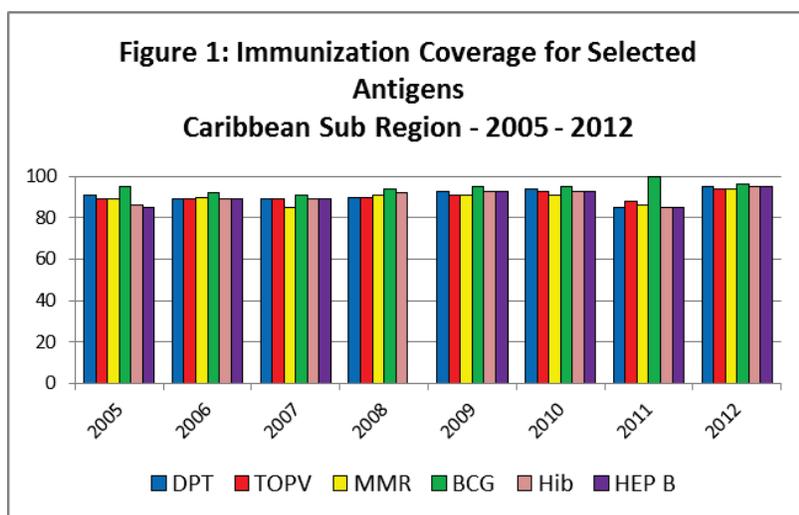
Protecting our achievements and gains

Attaining vaccination coverage of 95% or greater for administered antigens continues to be the goal for the countries of the Caribbean Community. This objective was achieved by many countries; however, low vaccination coverage still remains a challenge for some districts/zones. Vaccination of all persons across the life cycle (family immunization) remains priority and countries are working towards this end. Most of the countries have already included adolescents, adults, elderly, and groups with special needs as part of the public immunization schedule. However, formalization of family immunization schedules is still necessary in some countries. Countries are introducing new and underutilized vaccines in the public sector immunization schedule, but funding is still a major barrier.

Vaccine introduction and universal vaccination coverage

Pneumococcal vaccines was introduced into the public sector schedule in seven (7) countries (Aruba, Bahamas, Barbados, Bermuda, Cayman Islands, Guyana and Trinidad and Tobago) while in Jamaica, the vaccine is administered to the at-risk infant population and select at-risk groups. HPV vaccines are available for adolescents on an optional basis in Bermuda, Cayman Islands, Guyana, Trinidad and Tobago and Suriname. Rotavirus vaccine was introduced in the Cayman Islands in 2009 and in Guyana in 2010. BCG vaccine is now administered in twelve (12) countries.

The human papillomavirus (HPV) vaccines have been introduced in three of the countries on an optional basis – Bermuda in 2008, Cayman Islands in 2009 and Guyana in 2011. The vaccination program is school based and the introduction has been for girls 11 to 13 years old. Introduction of HPV vaccine is also being discussed by several countries (such as Barbados and Suriname) and preparatory steps are being developed. The Council of CAREC and the Caucus of Health Ministers for the Caribbean Community (CARICOM) have requested discussion and costing on the feasibility of the introduction of the vaccine from a sub-regional perspective.



The overall vaccination coverage for administered vaccines for 2012 shows overall improvement compared to the years before. In 2012, twelve countries had vaccination coverage for DTP3 of 95% or more (same as in 2011); 13 countries had TOPV3 coverage over 95% (12 in 2011) and 11 countries had MMR1 coverage over 95% (12 countries in 2011). One country had coverage under 80% for TOPV and 1 country had coverage under 80% for MMR (same as in 2011).

Achieving national coverage of 95% or more for each administered vaccine at each region, district, or zone level has been and continues to be the goal of the immunization program.

General Disease Surveillance

One significant milestone in disease surveillance was the installation of the ISIS application in the EPI Unit in PAHO Jamaica and in the Surveillance Unit of the Ministry of Health of Jamaica. This decentralization is considered an added responsibility for the MOH to continue its surveillance program and also results in decreasing the input responsibility of the EPI Unit in PAHO/Jamaica.

The link with the CARPHA laboratory was recently completed and the input of the laboratory related data is now in process.

Research activities

The Ministry of Health of Saint Kitts and Nevis, in collaboration with PAHO/CAREC, implemented a prevalence study of Hepatitis-B infection in antenatals in Saint Kitts and Nevis, to assess the current situation with regard to HBV infection on the islands.

A cross-sectional survey of Iron, Iodine and Vitamin A status and antibody levels was conducted in the hinterland regions, coastal rural areas and coastal urban areas in Guyana, amongst those persons most at risk for micronutrient deficiencies: young children, school-aged children and pregnant women. The objective of the study was to update available information for the planning and assessment of programs to prevent and control micronutrient deficiencies.

The study also presented an opportunity to see the actual level of protection rather than simply the number of booster doses of measles, rubella, yellow fever and tetanus immunization received. The data analysis and report writing are pending conclusion.

The Caribbean EPI Managers' Meeting

Given the current process of relocation of the EPI unit to its new location, it was decided to postpone the 29th EPI Managers meeting for the Caribbean to the first quarter of 2013 and, further to this meeting.

Mini EPI Managers' Meeting

The 6th annual Mini EPI-Managers' Meeting of the Dutch Caribbean was held in Sint Maarten, from 13 - 14 September 2012.

This was the first mini-EPI meeting since the constitutional change for the Netherlands Antilles went into effect on 10 October 2010, when Curaçao and Sint Maarten joined Aruba in becoming autonomous countries in the Kingdom of the Netherlands, and the remaining islands - Bonaire, Saba, and St. Eustatius - became public entities or municipalities of the Netherlands.

The meeting concluded with a series of recommendations in the areas of collaboration for uniformity, exchange of vaccination data, strengthening of surveillance systems, training, social mobilization and continuity of services. In September this year, the 7th annual Mini EPI-Managers' Meeting of the Dutch Caribbean was held in Saba, from 11 - 12 September 2012. Further information on both meetings can be found later in this report.

Conclusion

The year has been productive but challenging, with public health practitioners having to attain and maintain objectives, while the activities and final report of the documentation and verification of the elimination of measles, rubella and CRS were being conducted simultaneously. The Governments continue to remain committed to the goals and objectives of universal immunization and elimination of vaccine preventable diseases. Efficient and effective surveillance systems, together with timely responses, will ensure that countries remain free of endemic measles, rubella and other VPDs.

Recommendations

- Countries will continue working towards achieving national coverage of 95% or more for each administered vaccine at each region, district, or zone level.
- Vaccination of all persons along life cycle (family immunization) remains priority and countries will continue working towards this end.
- Countries will continue introducing new and underutilized vaccines in the public sector immunization schedule.
- A plan of action for maintaining the elimination of measles, rubella and CRS in the Region of the Americas will be implemented to strengthen active surveillance of measles, rubella and CRS; to ensure measures for responding in a timely manner to viruses and imported outbreaks, and to maintain 95% or more immunization coverage at the national level and in every municipality.

4. Measles, rubella and CRS elimination

4.1. Update on documentation and verification of measles, rubella, and CRS elimination in the Americas

All countries submitted a draft report to the Sub-regional Commission. The Secretariat (CAREC's immunization team) to the Commission and teams (which at times included members of the Commission) supported and validated elimination in nine countries. Support was also given by the Secretariat to convene the meetings and attend to the logistics of the Commission and the preparation of the Sub-regional Report. This report was submitted in December, 2011.

Regional progress on the verification of the elimination of measles, rubella and CRS

At the 28th PAHO/WHO Pan American Sanitary Conference, held in September 2012 in Washington, D.C., the International Expert Committee (IEC) presented progress made in the documentation and verification process to the Member States. In its regional report, it concluded that "it appears that the interruption of endemic measles and rubella virus transmission has been achieved." However, the report establishes that "as part of the documentation and verification process, several Member States have identified challenges they need to overcome for maintaining elimination of measles, rubella and CRS. In addition, some countries have reported weakness and failures in their national surveillance systems and routine immunization programs, which must be dealt with."

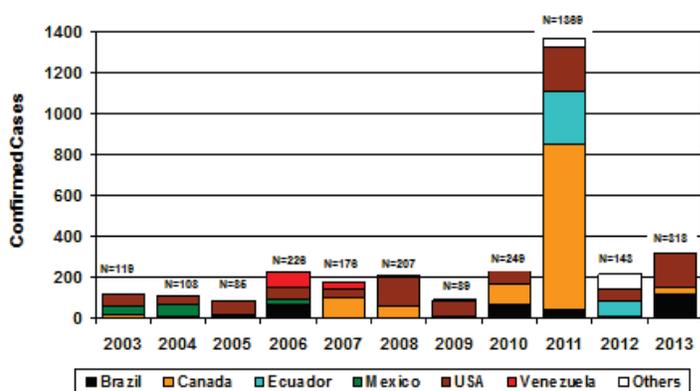
In light of the Region's vulnerability and risk, at the Pan American Sanitary Conference, the IEC presented a plan of action for maintaining the elimination of measles, rubella and CRS in the Region of the Americas, which was approved by the Member States by means of resolution CSP28.R14. In this resolution, countries are called upon to strengthen active surveillance of measles, rubella and CRS; to ensure measures for responding in a timely manner to viruses and imported outbreaks; and to maintain 95% or more immunization coverage at the national level and in every municipality.

Overview of Status of Measles, Rubella, and CRS Elimination in the Americas

The Region of the Americas has lead efforts to reach global elimination by being the first region to eliminate both measles and rubella and initiate the process leading to the regional certification. Endemic measles and rubella virus transmission was interrupted in the Americas in 2002 and in 2009, respectively, through effective implementation of PAHO-recommended strategies. PAHO continues providing valuable lessons learned to other WHO regions and the Americas serves as an example of the technical feasibility of disease elimination.

However, the measles virus continues to circulate in other regions of the world and considering that more than 142 million international travelers visit the Americas each year, importations are expected.

Distribution of Confirmed Measles Cases Following the Interruption of Endemic Transmission, the Americas, 2003-2013*



Source: Country reports to FCH-IM/PAHO.

* Data as of epidemiological week 39/2013.

All of the reported measles cases (N=146) in 2012 and in 2013 (N=318) have been linked to imported viruses. In 2012, the most common genotype was B3, mainly due to several secondary cases reported from an outbreak in Ecuador. In 2013 D8 has been the most common circulating genotype and related generally to outbreaks in the USA and Brazil. There were 166 cases of measles reported in the United States by the 34th epidemiological week. Also Brazil has confirmed 114 cases by the week 38¹: the majority of cases were from an outbreak in Pernambuco (85%) (Graph 1).

In 2012, 16 people were reported to have rubella. In 2013, as of October 3, 7 rubella cases have been reported; the majority of cases were linked to a rubella outbreak in Japan. As long as rubella remains endemic elsewhere in the world, imported CRS will continue to be a public health concern in the Americas. In 2012, 3 cases of congenital rubella syndrome (CRS) were detected in the United States in infants whose mothers were infected during their pregnancy in Africa. No CRS cases have been reported this year.

Due to virus importation and the consequent risk for reintroduction in the Americas, at the Pan American Sanitary Conference PAHO Member States approved a plan of action for maintaining the elimination of

¹ Following cases have been reported: 5 in Sao Paulo, Minas Gerais in 2, 98 in Pernambuco, 7 in Paraiba and 1 in Santa Catarina.

measles, rubella and CRS in the Region of the Americas (resolution CSP28.R14). According to the Plan of Action, countries are called upon to strengthen active surveillance of measles, rubella and CRS to ensure measures for responding in a timely manner to viruses and imported outbreaks. All measles activity in the Region has continued to be reported and shared with countries daily, and all activities have been aligned with the implementation of the International Health Regulations.

High-quality surveillance is required for rapid identification, timely investigation, and thorough follow-up of suspected cases of all rash illness. All countries have a sensitive and timely case based measles and rubella/CRS surveillance system, nevertheless the quality of active epidemiological surveillance is not always homogenous at the sub-national and local levels. There are also some gaps in the surveillance of CRS; where they exist, countries use alternative and complementary lines of evidence such as conducting retrospective studies. Integrated epidemiological surveillance of measles/rubella met nearly all of the performance indicators for 2012, over 80%, and high performance has been continued in 2013. Virologic surveillance has been sufficient to document the interruption of transmission of measles and rubella for verification of elimination and to detect virus importations. Overall countries have responded well to reported cases of measles and rubella, carrying out outbreak response activities such as searching for cases, tracing contacts, and evaluating risk.

Most of the countries in the Region report very high immunization coverage (>95%). During 2012, countries and territories reported higher coverage for the first dose (MMR1) (94%), recommended at one year of age, than for MMR2 (77%). With the goal of achieving the highest MMR2 coverage possible, the TAG recommended administration of the MMR2 vaccine at 15 to 18 months with a note that it could be given simultaneously with other vaccines, such as the first DPT booster.

However, follow-up campaigns are still maintained to guarantee high population immunity against measles, in addition to maintaining high routine immunization coverage. Countries target population groups with concentrations of unvaccinated individuals following an analysis of vaccination coverage. Last year four countries implemented national follow-up campaigns: Bolivia, Haiti, Honduras and Nicaragua. Currently, Guatemala is implementing a follow up campaign, and in 2014, at least Venezuela and Uruguay will implement similar activities. Recent outbreaks also suggest that spatial heterogeneity in coverage should also be a focus of concern. Efforts must continue to focus on quality interventions targeting high-risk municipalities. To this end, countries have conducted rapid monitoring of vaccination in high risk areas and implemented mop-up campaigns or intensified vaccination activities in the areas with lower vaccination coverage.

The public health implications of mass gatherings are becoming more pronounced; as such events draw ever-larger international crowds. This raises the possibility of the importation of the measles and rubella viruses from other regions of the world, which could lead to outbreaks, both at a high cost in terms of health, and placing the maintenance of the elimination of these diseases at risk. PAHO has provided support and technical cooperation to Member States hosting mass gatherings, and released health alerts on measles and rubella.

In 2013, the Region of the Americas was the venue for two large-scale international events, including the 28th World Youth Day in Rio de Janeiro Brazil and the 9th World Games in Cali, Colombia. As part of preparation, countries carried out supplementary immunization activities and intensified surveillance both before and after events. In the coming years, the Americas will host the 2014 FIFA World Cup and the 31st Summer Olympic Games in 2016, both in Brazil. Various communication approaches have been used to promote routine immunization and campaigns, including through social media. Large-scale

promotional campaigns are planned for next year to disseminate messages on the importance of being vaccinated against measles and rubella before participating in large events.

4.2. Measles Elimination in Europe: Current Situation and Threats

An overview was given of the measles situation in Europe. WHO Europe launched the measles and rubella elimination initiative (including the prevention of CRS) initially targeting 2010; this was later postponed to 2015. So far, the situation in Europe is far from measles elimination. Outbreaks occurred in 2010 and 2011, responsible both years for over 30,000 cases in Europe, mostly attributable to low vaccine coverage; 82% of the cases were unvaccinated.

There are three principal groups of under-vaccinated children in Europe:

1. Children whose parents hesitate to vaccinate out of fear of complications
2. Children whose parents oppose vaccinations on religious or philosophical grounds
3. Children in marginalized and under-served groups in the society.

Measles outbreaks in measles-free European countries are frequently caused by importation from other countries in the region, resulting in the virus moving back and forth across Europe. Europe has also become a net exporter of measles to the measles-free countries of the Americas. Half of the measles importations in the Americas originate in Europe.

Only about half of the European Union/European Economic Area countries (16 of 30) met the elimination target of less than one case per million population in the past 12 months. The Netherlands did meet the target in 2010-2012, but in May 2013 an outbreak emerged in the so-called bible-belt, a region where many individuals refuse vaccination for religious reasons and live in socio-geographic proximity, thus escaping herd-immunity. This outbreak was presented, together with the measures that were taken to prevent further spread. As of November 20, 2013 2,367 measles cases had been reported, including the death of a 17-year-old, and one individual severely damaged by encephalitis. The epidemic now appears to be levelling off.

4.3. Rash and Fever Surveillance in the Caribbean

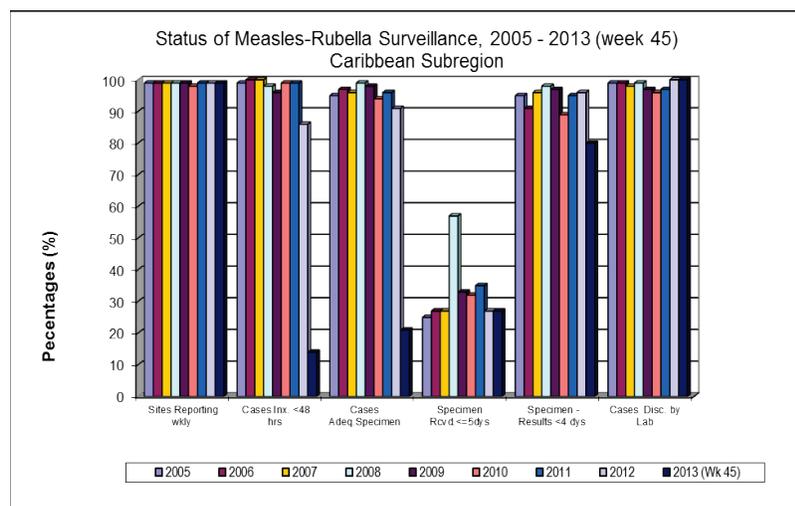
The objectives of the Rash and Fever Surveillance are:

- To achieve a timely, complete, regular and accurate surveillance system with active case finding.
- To maintain > 95% coverage for measles and rubella vaccine for each birth cohort.
- To ensure that all measles, rubella and CRS indicators are met in all countries.

The fever/rash surveillance system implemented in 1991 in countries has shown that indigenous measles cases have been eliminated; no indigenous measles cases have been reported since 1991. In 2012, there were 752 sites that reported suspected measles, rubella, and CRS cases in the Caribbean sub-region. Ninety-nine (99%) percent of these sites reported on a weekly basis and national reports include data from public and private health facilities. Routine reporting of febrile rash illnesses continues from French Guiana (started in 2003) and the Dutch-speaking islands (collectively), which started reporting again in 2007. St. Maarten reports separately and weekly since 2010 as well as Martinique and Guadeloupe (including St. Martin).

Eight confirmed cases of measles (imported from Europe and North America) occurred during the period from 1991 to 2012. In 2011, there was one laboratory confirmed case of measles reported from Jamaica. This case was an eight year old tourist from the United Kingdom. Prior to this case, the last 2 cases

(imported and import-related) were in Jamaica in 2008. Enhanced community surveillance activities were also reflected in 2008.



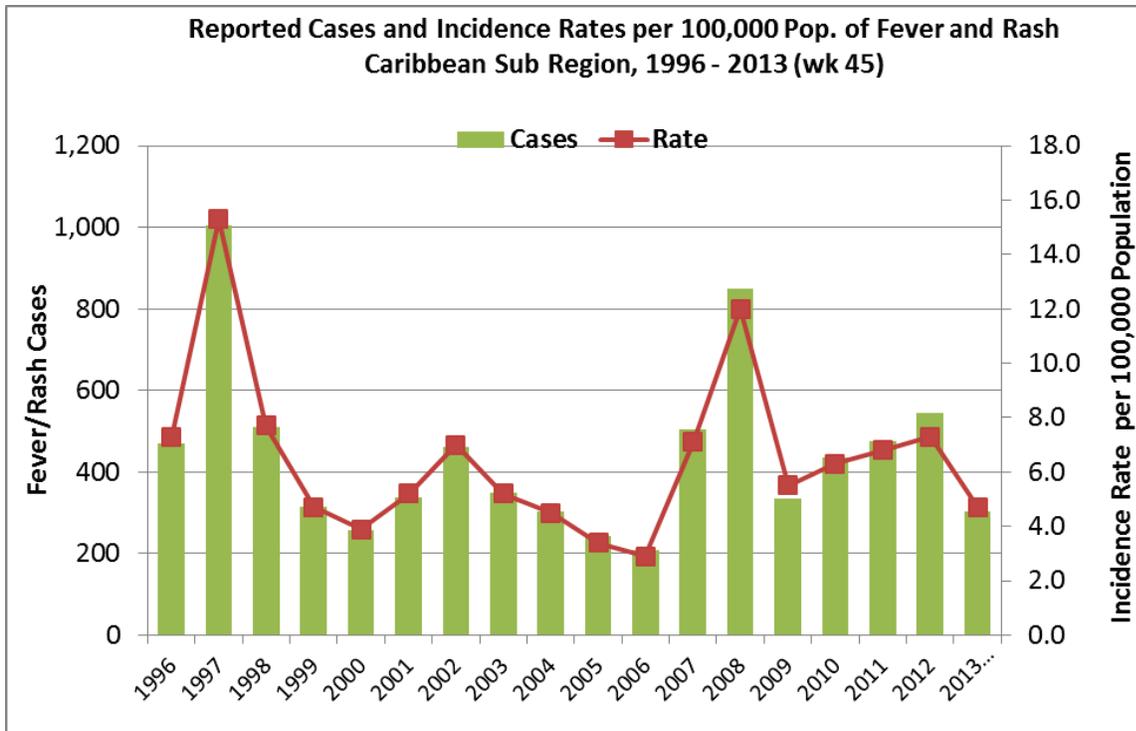
In 2012, there were 544 suspected measles, rubella and CRS cases reported. None of these cases were confirmed as measles or rubella. One case was diagnosed as Dengue. Of these cases, 86% were adequately investigated, 91% came with adequate specimens, 27% of these specimens were received in the lab within 5 days and 96% of the lab results were returned within 4 days.

Up to epidemiological week 45 in 2013, 11 countries in the Caribbean sub-region had reported 302 suspected cases. Thus far (week 45), 719 sites were reporting weekly. For 2013, data are incomplete, pending an e-link between ISIS/CARPHA and ISIS/PAHO/Jamaica.

Table 1: Reported suspected measles/rubella cases in the Caribbean sub-region, 2013

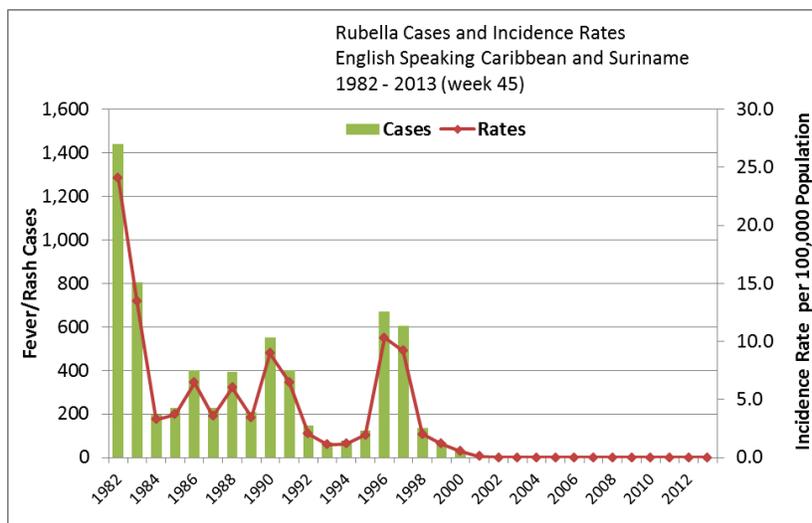
Country	Cases	Male	Female	Age
Bahamas	2	1	1	4;51
Barbados	3	2	1	0/5;0/8;4
Belize	63			
Dominica	1		1	3
Guyana	37			
Jamaica	162			
Montserrat	1	1		1/8
St. Kitts & Nevis	1	1		2/4
St. Vincent & the Grenadines	1		1	3
Suriname	26			
Trinidad & Tobago	4	4		0/10;5/6;5/11;24/3

Preliminary figures show that, of these reported 302 suspected cases, 14% were adequately investigated, 21% came with adequate specimens, 27% of these specimens were received in the lab within 5 days and 80% of the lab results were returned within 4 days.



Impact of the Rubella Vaccination Program

The last cases of indigenous rubella were reported in 2001, when there were six cases from one country. In 2008, an imported rubella case was reported from Bermuda and another rubella case from French Guiana. No case was reported from 2009 to 2012.



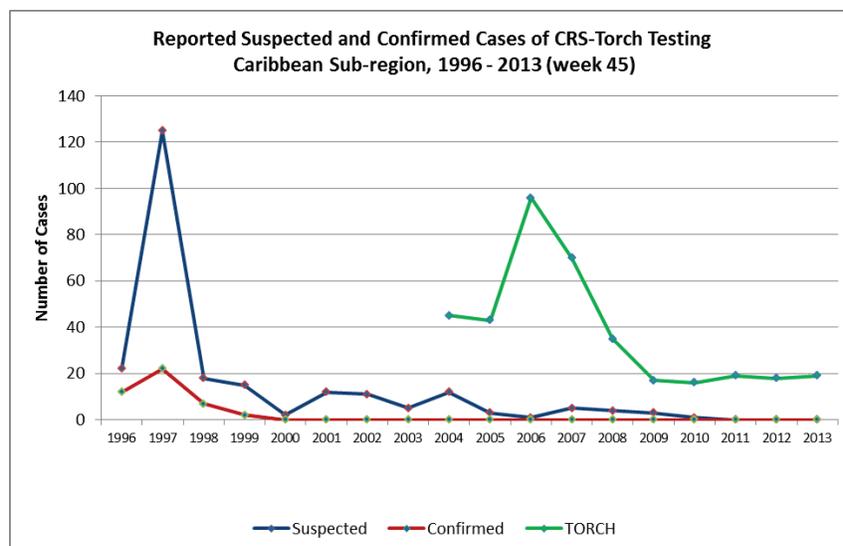
In 2004, the surveillance system for CRS detection was enhanced with the implementation of TORCH (toxoplasmosis, rubella, cytomegalovirus, and herpes) testing. A total of 336 specimens have been tested for rubella through TORCH testing between 2004 and 2012.

In 2012, one (1) suspected case of CRS was referred for testing in addition to 18 cases (from 6 countries) referred for TORCH evaluation. All cases were discarded as negative for CRS

from laboratory testing. In 2013, 19 cases of CSR were referred for TORCH evaluation. All cases were discarded as negative for CRS from laboratory testing. The last indigenous CRS case in a CAREC member country was recorded in 1999.

CRS Surveillance

CRS is not a nationally notifiable disease in almost all countries, and not on the list of the communicable disease registry at CAREC (now CARPHA). Between 1996 and 1997, thirty-one cases of CRS were reported from Jamaica, Barbados, Trinidad and Tobago, Belize, Guyana, Bahamas and Suriname. Of

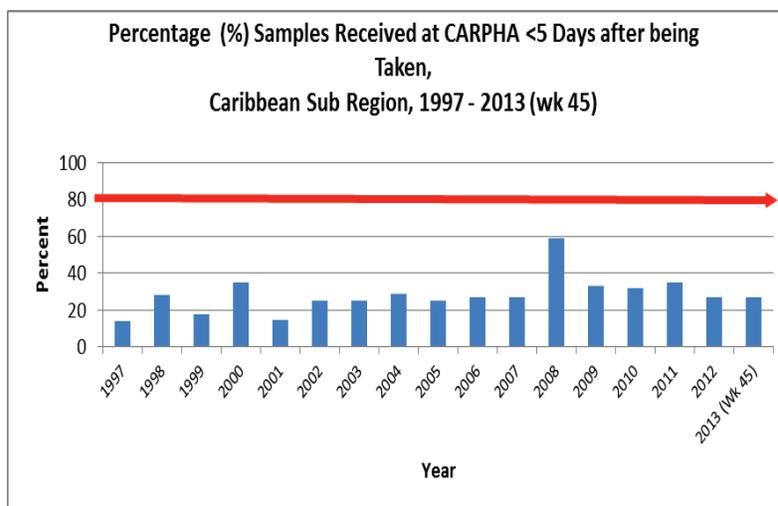


the 31 cases, 28 were diagnosed at the age of 12 months or younger. The ages of mothers who had babies with CRS ranged from 14 to 39 years with the majority being 20 years of age and over.

The Caribbean Islands of the Kingdom of Netherlands reported the last confirmed cases of rubella and congenital rubella syndrome were seen in the 1980s. Since 2000, there have been no confirmed cases of indigenous rubella or congenital rubella syndrome.

Effective management from CAREC (now CARPHA) has helped ensure the efficiency of the integrated system. Weekly review of the investigation forms, identifying the weak areas and working with countries to amend identified deficits are some of the activities routinely done by CARPHA. Almost all the surveillance indicators are always above their target levels indicating that this system of monitoring and feedback is functioning well.

All countries need to ensure that 80% of the specimens are received at the CARPHA laboratory less than five days post collection. Overall 35% of specimens arrived at the CARPHA laboratory in less than five (5) days, post collection. Countries are still being encouraged to ship specimens to CARPHA as quickly as possible after collection and ensure that mechanisms are in place for in country transportation. Finance is a major challenge and has resulted in the batching of specimens.



4.4. Caribbean Country Reports

Barbados

Several lessons learned were identified after carrying out the documentation and verification process in Barbados, including the maintenance of vaccination coverage of 95% to ensure a high herd immunity level to prevent spread in the event of an importation; maintenance of a cold chain system to guarantee that vaccines have been kept at their recommended temperature; that all vaccines should be administered following manufacturers recommended dosage and technique; and that target population should be estimated at the beginning of each year and the target population for MMR1 and MMR2 should be adjusted at the clinic level in order to more accurately calculate the vaccination coverage at the end of each year.

A few of the challenges identified were training and orientation needs for new staff to ensure a systematic hand-over of responsibilities; health care workers from the public and private health sectors should be sensitized on the measles, rubella and CRS surveillance system; also the rash and fever surveillance manual should be available and utilized by all reporting staff. Additionally regular workshops and updates should be held locally to discuss strategies, techniques, procedures and feedback regarding information and problems that some staff may be encountering.

In past two years Barbados has implemented several changes successfully based on the recommendations of the Commission: high vaccination coverage of MMR1 coverage has been achieved at 93%; implementation of weekly routine surveillance for rash and fever has been conducted; all suspected fever/rash cases who meet the case definition have had blood specimens collected systematically and sent to CARPHA for investigation; and pediatricians/obstetricians are notifying in a timely manner all suspected cases to the EPI manager to initiate adequate case investigation. To address training needs, sessions were held for both private and public health care workers and the EPI manual has been updated. In 2013, Barbados reviewed their clinic registers and all detected defaulters were followed up. Additionally, a school survey was implemented in primary schools to check on the immunization status of children, with a particular focus on MMR2.

French Departments

The committee for documentation and verification of measles, rubella and CRS elimination in the Americas concluded that local transmission of measles had been interrupted in French Departments. Since 2005, there has been no laboratory confirmed cases for measles; only imported cases have been detected (2 cases confirmed with six secondary cases in 2010; and 5 confirmed cases in 2011). The last 3 rubella cases were reported in 2008. There have also been no confirmed CRS cases since 1998.

A few of the challenges identified include: administrative coverage estimates are not currently available due to fragmentation of the delivery of immunization services and heterogeneity of the health information system (HIS) between providers; lack of continuity of outreach strategies in areas with limited access to health services; insufficient information regarding target populations; inadequate awareness among medical practitioners on the importance of timely notification of cases; and lack of knowledge of the measles, rubella and CRS elimination initiative. An additional challenge facing the Departments is related to high population movement between France and French Departments, neighboring countries, and Brazil. For instance France faced a major measles outbreak in 2011, which yielded virus importation and increase in suspected cases in the French Departments.

A road map to address these challenges is currently being developed with the goal to finalize the plan in 2014. The objectives are: to reach and maintain coverage of >95% for MMR by reducing missed vaccination opportunities; reinforce systemic revision of non-vaccinated children at school entry; and improve cold chain and vaccine management. A communication strategy on measles targeting education, health, military and other professionals should be implemented including sensitizing and training of medical doctors on timely notification. Both the surveillance system and the laboratory services need to be strengthened and improved, including systematic use of rapid diagnostic test in areas where serology is not available.

Trinidad and Tobago

Measles, rubella and CRS surveillance has shown no confirmed endemic cases in the past 25 years. Over the past two decades, Trinidad and Tobago has maintained high immunization coverage and an effective surveillance system to protect its population against measles, rubella and CRS.

Despite the fact that the risk for disease importation remains high in Trinidad and Tobago due to its thriving tourism industry and extremely migratory population, during 2011-2013, there were no detected imported cases of measles, rubella and CRS; 26 suspected cases were detected and notified. Surveillance of rash and fever and CRS cases is the responsibility of the national nurse epidemiologists of the national Ministry of Health. Cases of reportable diseases, including VPDs, are reported by public and private health facilities to the Ministry for further investigation, outbreak response and analysis. The EPI program and the National Surveillance unit continue to maintain high population immunity and monitor for fever and rash cases and CRS.

Recommendations

- Countries should incorporate strategies and concrete activities into their EPI Plans of Action as stated in the resolution “Emergency Plan of Action for Maintaining the Regional Elimination of Endemic Measles, Rubella and CRS”.
- Countries should exert all efforts to incorporate data of the private health sector such as notification of suspected cases and laboratory results of suspected samples in the measles, rubella and CRS surveillance system.
- Countries should achieve an adequate level of outbreak *preparedness by developing* national plans for preparation (e.g. health alerts) and rapid response to an importation and potential outbreak, in light of the mass gathering events that will take place in the Region in 2014, such as the World Cup in Brazil.
- Countries should implement a system at the first level of care to help in the identification of suspected CRS cases.
- Countries should incorporate specialized centers to be a part of the CRS surveillance network.
- Countries should review the quality of immunization data to ensure accurate coverage, while reviewing different sources
- Countries should follow the TAG recommendation of 2013 to administrate the MMR2 vaccine at 15 to 18 months, which can be given simultaneously with other vaccines, such as the first DPT booster.

Recommendations... continued

- Countries should continue to verify vaccination status at school entry and immunize children who have not been vaccinated with MMR2.
- Countries should continue with high-quality follow-up vaccination campaigns in order to guarantee a high level of immunity, while the Region continues with the verification process and vaccination coverage >95% has been achieved with two doses of MMR or MR as part of the routine program.
- Countries should continue advocating for measles and rubella elimination in global forums such as the World Health Assembly, considering that importations of the virus pose a challenge for maintaining elimination in the Americas.

5. Sustaining Polio Eradication

5.1. Polio endgame and its implications for vaccination policy

Much progress has been made with regard to the global eradication of poliomyelitis; no type 3 poliovirus has been reported since November 2012, there has been a 40% decline in endemic cases and there has been no endemic transmission in India since January 2011. The last case of wild poliovirus in the Americas was in 1991, and the Region was certified as polio-free in 1994. As a whole, the Americas has attained vaccination coverage with polio vaccine of over 90% in the target population, but in some countries coverage remains under 90% and/or is not homogenous. A similar situation exists for surveillance of acute flaccid paralysis (AFP), where the annual rate was above 1.0 per 100,000 population less than 15 years of age.

Globally, circulating vaccine derived poliovirus (cVDPV) is problematic in several countries where trivalent oral polio vaccine (tOPV) is used and vaccination coverage is low. Between 2000 and 2013, there were many outbreaks due to cVDPV and 14 countries had type 2 OPV cVDPV. Type 1 was responsible for 79 cases, type 2 for 572 cases and type 3 for 11 cases. Therefore, despite the fact that wild polio virus type 2 (WPV2) was eradicated in 1999, type 2 virus has been responsible for 40% of all VAPP, most cVDPV outbreaks and 85% of all cVDPV cases since 2000.

A strategic plan has been developed by WHO for the endgame of polio eradication covering 2013-2018, which contains four main areas of work: polio detection and interruption, immunization systems and OPV type 2 withdrawal, containment and certification and legacy planning.

A major aspect of the plan is the withdrawal of OPV type 2 from the vaccination schedule and introduction of at least 1 dose of IPV prior to OPV2 cessation. Withdrawing OPV2 will give a boost to global polio eradication by eliminating the risk of type 2 vaccine-derived poliovirus (cVDPV2) and accelerating eradication of wild poliovirus types 1 and 3 because bivalent OPV 1 and 3 is far more immunogenic against types 1 and 3 than trivalent OPV. SAGE (Nov 2012) recommended that at least one dose of IPV is included in the routine schedule for the following reasons:

- Prevention of paralytic polio in children exposed to a VDPV2 or WPV2;
- Improved response to mOPV2 in the event of an outbreak;
- Reduction in the transmission of a reintroduced type 2 and boosted immunity to WPV1 and 3.

SAGE recommended that countries introduce at least one dose of IPV into their routine schedules by the 3rd quarter of 2015 in preparation for OPV2 withdrawal for OPV-only using countries. The IPV dose is in addition to the 3-4 doses of OPV in the primary series and given at immunization contact at or after 14 weeks. The trigger for OPV2 withdrawal would be the evidence of absence of all 'persistent' cVDPV2s for at least 6 months globally. Adequate and timely surveillance data for acute flaccid paralysis and attaining and maintaining vaccination coverage at 95% or higher in each geopolitical area within countries are the goals in order to sustain polio eradication.

5.2. AFP Surveillance in the Caribbean

The countries of the Caribbean are at risk for receiving an importation of wild poliovirus and cVDPV. Failing to rapidly detect an importation, while having widespread circulation, reflects the quality of surveillance and low population immunity.

Poliomyelitis eradication efforts and AFP surveillance

The global eradication of the wild poliovirus continues to require much effort in order to complete. The importance of maintaining adequate and timely surveillance, as well as high vaccination coverage cannot be overstated. The last cases of poliomyelitis due to wild poliovirus in the Caribbean occurred in 1982. The countries have strived to maintain high poliovirus vaccination coverage and effective AFP surveillance.

From 1994 to 2012, there were 301 AFP cases aged less than 15 years reported from 11 countries. Excluding 1994 and 2003, when the annual AFP rate was 1.0 or greater, the annual AFP rates ranged between 0.25 (week 45/2013) to 0.98 per 100,000 population aged less than 15 years.

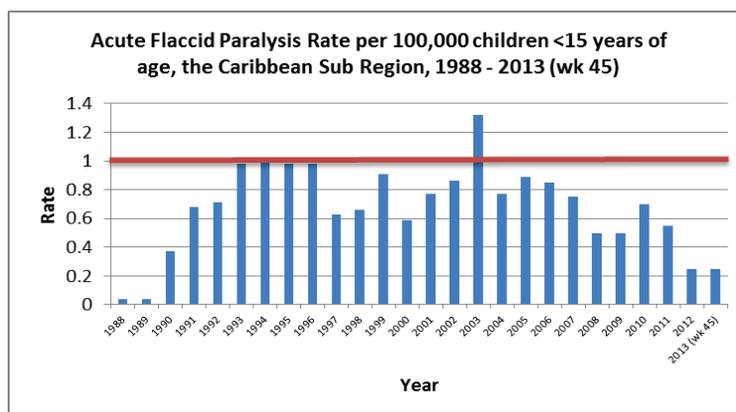


Table: AFP cases reported up to week 45, 2013

Country	2013	Males	Females	Under 15
BLZ	6		6	3
BRB	3	1	2	1
GUY	9	8	1	2
JAM	3	1	2	1
SUR	1	1		
TTO	4	2	2	4
TOTAL	26	13	13	11

In 2012, there were 500 AFP sites that continued reporting and 99% of these sites reported on a weekly basis. There were 5 AFP cases under 15 years. The AFP reporting rate per 100,000 < 15 years was 0.25. Of the reported cases, 80% were investigated within 48 hours and 40% had adequate specimens taken within 14 days of onset of paralysis. All cases were discarded as non-polio, with final diagnoses of Guillain-Barré (7 cases), traumatic neuritis, tumor or other.

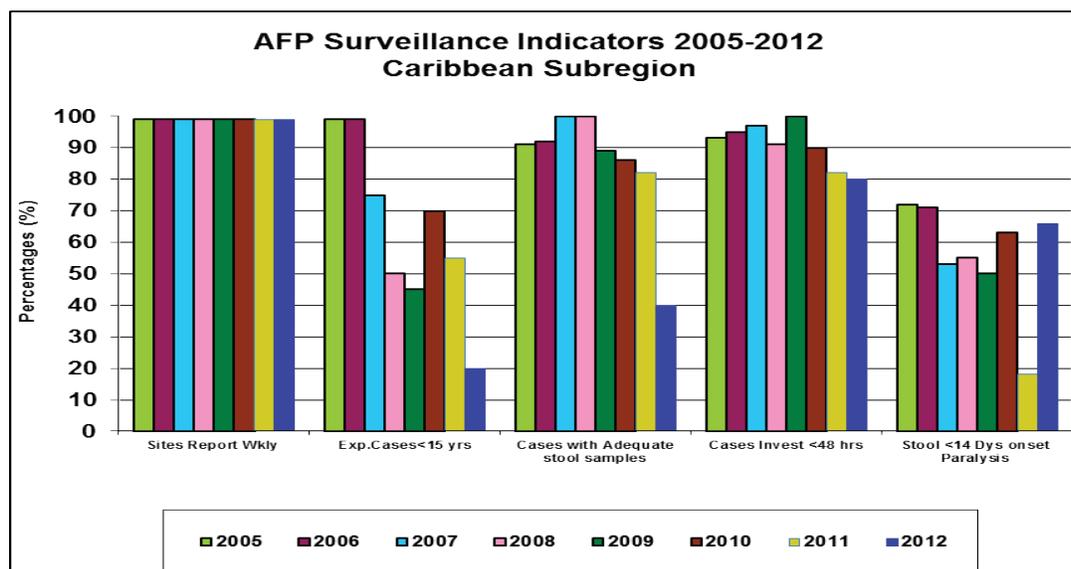
Up to week 45/2013, there were 26 AFP cases reported from 6 countries. Of these, 11 cases were under 15 years. (See table)

The indicators for 2013 are incomplete, pending the e-link between the ISIS application in CARPHA and PAHO/Jamaica. The 11 reported cases under 15 years for AFP yields a rate of 0.25 which remains below the target of 1.0 for the Caribbean sub region.

The AFP surveillance indicators show for that in 2012:

- 99% of the sites were reporting on a weekly basis.
- 20 cases (under 15 year) are expected to be reported.
- 40% of the cases were submitted with adequate stool samples
- 80% of the cases were investigated within 48 hours and
- 66% of the cases had a stool sample taken within 14 days of onset of paralysis.

These figures stress the necessity that countries pay attention and reemphasize timely and adequate sample collection and laboratory submission.



Recommendations

- Countries are urged to make efforts for all stool specimens for AFP to be collected within 14 days of onset of paralysis and improve timeliness of delivery to CAREC.
- Countries must take measures to achieve vaccination coverage >95 % in every district, to conduct an active search for cases of AFP and to comply with the AFP surveillance indicators (rate > 1 x 100,000 for the population aged <15 years old and adequate stool samples collected in >80 % of AFP cases).
- Countries must sensitize health officials about the prerequisites for the endgame of OPV2 and the requirements for introduction of IPV.
- Countries must achieve 95% coverage for each geopolitical area and ensure adequate and timely surveillance data for acute flaccid paralysis for achieving eradication and sustaining elimination for polio.

6. Pneumococcal, meningococcal and rotavirus vaccination

6.1. Update on pneumococcus, meningococcal and rotavirus vaccination in the Americas

Pneumococcal disease

Pneumococcal disease causes an estimated 1.3 million cases of acute otitis media, 327 thousand cases of pneumonia, 1,229 cases of sepsis and 4,000 cases of meningitis annually in Latin America and the Caribbean (LAC) in children less than 5 years of age.

In LAC, an epidemiological surveillance network of bacterial pneumonia and meningitis in children less than 5 years in sentinel hospitals has been supported and has come to match the laboratory network of SIREVA II. The following 10 countries in the Region report their epidemiological surveillance data for bacterial pneumonias and meningitis to PAHO: Brazil (meningitis), Bolivia, Ecuador, El Salvador, Guatemala, Honduras, Panama, Peru, Paraguay and Venezuela. The WHO, in its last position paper on the 2007 pneumococcal conjugate vaccine, considered the vaccine a priority in the vaccination schedules of the countries. Moreover in 2006 and 2009, the TAG recommended that all countries of the Region implement surveillance systems in order to understand the profile of the disease and monitor the impact of vaccine introduction. As of November 2013, 26 countries and two territories in the Region have introduced the pneumococcal conjugate vaccine in their national immunization programs.

Meningococcal disease

Few diseases have as much power to cause panic among the population as meningococcal disease, primarily because of its potential epidemic nature, the rapid onset of illness and its high case fatality rates (10% - 20%) and substantial morbidity (up to 20% of survivors of meningococcal disease develop long-term sequelae, including deafness, neurological deficit, or limb amputation).^{1,2}

The overall incidence of meningococcal disease in Latin America varied widely in the last years, from less than 0,1 cases per 100,000 inhabitants in countries like Mexico to almost 2 cases per 100,000 inhabitants per year in Brazil and the highest age-specific incidence of meningococcal disease which was consistently observed in infants < 1 year of age. Most cases of meningococcal disease are sporadic, with

outbreaks occurring at irregular intervals. The majority of the most recently reported disease outbreaks in the Region were associated with serogroup C disease; a shift in the age distribution of meningococcal disease was also observed, with increased numbers of cases among adolescents and young adults.¹

Although considered a disease of mandatory reporting in most Latin American countries, the exceedingly low rates of meningococcal disease reported by some countries, coupled with the high proportion of meningitis reported without a determined bacterial etiology indicates a probable underestimation of the real burden of meningococcal disease in the Region.¹ It also highlights the difficulty in recovering the organism, not only due to limitations in obtaining adequate samples for culture, but also as the consequence of the common practice of previous antibiotic use. Most of the overall information for Latin America is based on a surveillance network (SIREVA II, PAHO/WHO) that performs a systematic analysis of isolates recovered from several countries in the Region. Regarding serogroup distribution, serogroups B and C are responsible for the majority of cases reported in the Region. An increasing number of cases associated with serogroups W135 and Y have been reported in some countries, with serogroup A disease virtually disappearing from Latin America.

6.2. Country experiences in meningococcal vaccination

The Netherlands

In 2001, the Netherlands were confronted with an increase of invasive meningococcal C disease, which initially typically clustered in small communities, with fatalities among adolescents, causing huge public anxiety. At that time, new conjugated meningococcal C vaccine received market authorization and was used for outbreak control, but there was strong pressure to make the vaccine more widely available.

Discussing options for vaccine introduction and the appropriate schedule and guided by age-specific incidence rates, the decision was made to start with an immunization campaign targeting the entire population from 1 to 18 years of age (3.5 million individuals). The campaign, which lasted from June to November 2002, achieved 94% coverage and a sharp reduction in meningococcal C disease. Further meningococcal C vaccination was included in the regular National Immunization Program from September 2002 onwards, with one vaccine dose at the age of 14 months.

It was concluded that meningococcal C vaccination is very effective in controlling invasive disease. Depending on the country's meningococcal C epidemiology, a catch-up campaign should be considered to precede introduction of regular meningococcal C immunization, and thus (after thus having achieved sufficient herd-immunity) allowing to initiate vaccination of individuals over 1 year of age when one dose of meningococcal C vaccine is sufficient. Surveillance is crucial to monitor the vaccine impact.

Trinidad and Tobago

The Meningococcal Vaccine Conjugate C is the vaccine used in Trinidad and Tobago and is indicated for children 12 months and older, adolescents and adults, to prevent *Neisseria Meningitidis*. The vaccine was introduced in 2010. The last outbreaks of *Neisseria Meningitidis* occurred in 1998 to 2001. The purpose for introduction of the vaccine was to provide the Muslim community with the mandatory vaccine requirement to enter Saudi Arabia to perform the Hajj. By providing this vaccine it gives protection to the pilgrims and thereby prevents Meningococcal outbreaks in Trinidad and Tobago via returning pilgrims. Other uses of the vaccines are for students entering universities in the United States and patients with hyposplenism or asplenia.

6.3. Impact of Rotavirus Vaccination in Guyana

In Guyana, one out of five cases of diarrhea among children is caused by rotavirus. In 2008, there were 293 reports of children admitted to two major hospitals because of rotavirus infection; however these figures are most likely an underestimation since many cases are treated at home and thus underreported. Guyana introduced rotavirus vaccine in a phased approach in late October 2010. The third vaccine dose in 2011 and 2012 attained coverage of 74% and 91%, respectively. Despite successful introduction of the vaccine, intensification of efforts is required to increase vaccine in areas with less than 95% coverage.

Guyana, working in collaboration with CDC and PAHO, completed a retrospective investigation into the association between the use of the rotavirus vaccines and the occurrence of intussusception in 2008. Study result showed no evidence that the rotavirus vaccine being introduced caused intussusceptions. However, Ministry of Health and PAHO will continue to work together to track intussusceptions cases and rapidly identify any increase in occurrence. Currently, intussusceptions cases are very rare in Guyana. There has been a reduction in the number of GE cases in the selected area under study. Based on the established benefits of rotavirus vaccination and the rare occurrence of intussusception, use of rotavirus vaccine for infants have been continued. To date there have been no serious adverse events reported from rotavirus vaccination

Recommendations

- All countries of the Region should implement surveillance systems in order to know the profile of the Pneumococcal disease and monitor the impact of the introduction of the pneumococcal vaccine in their national immunization programs
- It is imperative that the countries implement systems for epidemiological surveillance of meningococcal disease;
Countries that already have sentinel epidemiological surveillance for bacterial meningitis and pneumonia in children under five should establish a plan of action to improve the quality of information;
- Countries should establish sentinel sites for other age groups for bacterial meningitis and pneumonia;
- Countries should analyze their epidemiology, during outbreaks and epidemics, before making decisions regarding control measures, including the identification of groups to vaccinate and the vaccine to be used.
- Countries with high burden of disease in young children that decide to introduce meningococcal conjugate vaccine as part of the routine immunization program targeting children aged <1 or <2 years should ideally include catch-up vaccination of children and adolescents

7.1. Seasonal influenza vaccination in the Americas

Over the last decade, there has been a sustained uptake of the seasonal influenza vaccine in the Region. This has been guided by factors including recommendations issued by technical advisory groups including PAHO's TAG; influenza-related morbidity and mortality; political decision-making; pandemic preparation efforts; and in a few countries, as the result of cost-effectiveness studies. As of 2012, 40 countries and territories reported use of the seasonal influenza vaccination in the public sector, compared

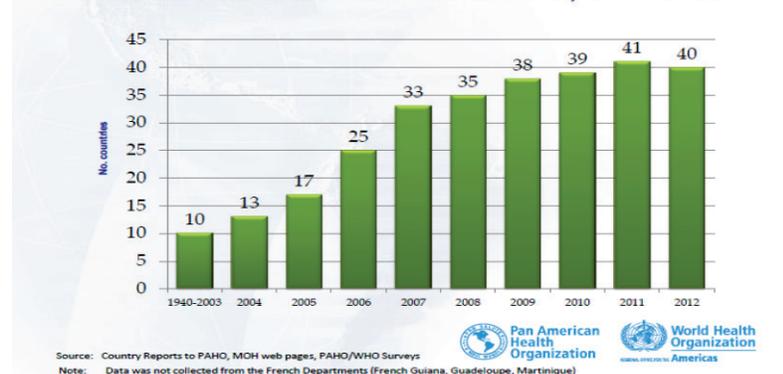
to 13 countries and territories in 2004. Common risk groups targeted by countries include children, the elderly, individuals with chronic illness, health care workers and pregnant women. There is consistent use of the northern or southern hemisphere vaccine formulations in the temperate areas of the Region, with mixed use of formulations in the tropics.

PAHO's TAG has issued recommendations on influenza vaccination in 2004, 2006, 2009 and in 2011. At the most recent TAG meeting, held in Quito Ecuador in July 2013, TAG endorsed the contents of the recently revised WHO position paper (November 2012) on the use of the influenza vaccine, which recommended the vaccination of five priority groups for countries using or considering introducing the seasonal influenza vaccine.

Pregnant women were given the highest priority for vaccination, followed by (in no particular order): children less than 5 years of age (particularly those from 6-23 months of age); health workers; older adults; and people with underlying conditions. WHO advised countries to take into account the burden of disease, cost-effectiveness studies and feasibility in order to make evidence-based decisions regarding vaccine introduction.

Assessing the true impact of seasonal influenza vaccine use in the Caribbean remains a challenge. Frequently, coverage data for targeted populations groups is inconsistent, unavailable or doses-only. The

Countries and Territories in the Americas with Policies for Seasonal Influenza Vaccination, 2003-2012



absence of reliable denominators and inconsistent definitions of high risk groups also pose challenges in the sub region. The current format of the WHO/UNICEF joint reporting form has proven to be inadequate to capture the intricacies of influenza target groups, such as the need to administer two doses of vaccine (given at least four weeks apart) for children less than nine years of age vaccinated for the first time.

Additionally, despite national policies, low vaccine uptake continues to be a problem among pregnant women and health care workers. Strengthened, sustained surveillance is also necessary to answer ongoing questions regarding the timeliness of vaccination and correct vaccine formulation to be used.

Despite these challenges, seasonal influenza vaccine remains the best tool available to prevent influenza-related morbidity and mortality. In 2012, a network was established to undertake evaluations of influenza vaccine effectiveness in the Region (REVELAC-i) and it will be important to have the participation of the Caribbean in this endeavor. In order to optimize and standardize reporting on the different seasonal influenza vaccination schedules in the Region, as well as the coverage obtained, format changes to the JRF will be implemented in 2014. To guide countries step-by-step through filling out the revised tables, accompanying guidelines will be included.

7.2. Influenza surveillance in the Caribbean

Influenza surveillance was first implemented in the Caribbean in 2007 and continues to date. Surveillance of severe respiratory infection (SARI) is being undertaken in nine countries through sentinel sites, namely Aruba, Barbados, Belize, Dominica, Jamaica, St. Lucia, St. Vincent and the Grenadines, Suriname and Trinidad and Tobago. Collection of samples and timeliness of reporting remains an issue in the sub region, as do variations in the interpretation of the SARI case definition.

In 2013 to date, among CARPHA member countries, the circulation of influenza viruses (H1N1 and H3N2) peaked between epidemiological weeks 37 and 43. Between 2012-2013 respiratory samples for testing were received by CARPHA from 14 countries and territories, resulting in 35 lab-confirmed cases of H1N1 in 2012 and 158 in 2013. While CARPHA has worked to transfer technology to a few countries to test influenza samples, this has not been sustained over the long term.

In 2013, CARPHA received 18 samples from Trinidad and Tobago to test for Middle East respiratory syndrome coronavirus (MERS-CoV). Samples had been taken from individuals who had recently returned from a religious pilgrimage to the Hajj. Of the specimens tested, none were positive for MERS-CoV, however 5 tested positive for H1N1 and 3 for H3N2.

Recommendations

- There is a need to systematically improve coverage with the seasonal influenza vaccine among targeted risk groups. Given their vulnerability to complications from influenza infection, pregnant women can be specifically targeted through antenatal clinic visits. Targeting vaccination of health workers should continue in a second phase.
- The Caribbean should pay special attention to the systematic strengthening of influenza surveillance which will aid in decision making surrounding vaccination. The laboratory network also needs to be reinforced. With the support of PAHO, a strategic plan of action should be developed to carry out this effort in a systematic and sustainable way.
- Countries should work towards achieving a mutual understanding of the roles and responsibilities of technical staff in the laboratory, surveillance and the EPI. Systematic communications and the establishment of an ongoing working relationship will help to facilitate the completion of goals of all national stakeholders, including improved laboratory reporting.

8. Sub-regional reports

8.1. Report of the 6th and the 7th Dutch Caribbean Mini EPI Managers' Meeting

In September 2012 the 6th mini-EPI meeting was held on Sint Maarten with representatives of PAHO, Dutch RIVM and the 6 Dutch Caribbean islands Saba, St. Eustatius, Bonaire, Aruba, Curacao and St. Maarten. Topics that were discussed during this meeting were the influence of the constitutional change on the EPI programs of the different islands, introduction of new vaccines, feasibility study for introduction of the heel prick for the three special municipalities of the Netherlands, surveillance, hepatitis B and C incidence on Sint Maarten.

In September 2013 the 7th mini-EPI/YHC meeting was held on Saba with representatives of Dutch RIVM and the 6 Dutch Caribbean islands. Subjects of this meeting were cold chain, ESAVI, feasibility study for heel prick and the introduction process of the heel prick, the need for continuation of the mini-EPI meeting with representatives of PAHO and the need for their financial support.

Recommendation

The Dutch Caribbean's use of the heel prick to screen for multiple congenital conditions may be of interest to other countries in the sub region, especially for those countries that have not already introduced sickle cell screening

8.2. Overview of Vaccination Week in the Americas 2012 – 2013

April 2013 marked the 11th year that the countries and territories of the Americas and the Pan American Health Organization have come together to celebrate Vaccination Week in the Americas (VWA). The slogan for the 2013 initiative was “Vaccination: a shared responsibility” to underline how governments, health care workers, families and the community each have a part to play in ensuring that high vaccination coverage is maintained and that national immunization programs are successful.

Over the last decade more than 465 million people have been vaccinated under the umbrella of VWA; however, the magnitude of this number only tells part of the story, as national immunization programs have expended extraordinary efforts traveling to all corners of the Region to vaccinate small numbers of individuals during VWA who might otherwise have remained unprotected against vaccine-preventable disease.

In 2013, VWA was celebrated by 44 countries and territories. Launching events and celebrations were held in the majority of countries through the Region, including the participation of high level authorities and local leaders. The two regional VWA launches in 2013 were held at the Adjacency Zone between Belize and Guatemala and in Haiti. More than 53.8 million people were vaccinated across the Region under the framework of the initiative through a wide array of campaigns chosen based on individual countries' health priorities. Based on country reports to PAHO, these included 25 countries and territories that administered multiple antigens to start, update or complete vaccination schedules; 15 countries that conducted seasonal influenza campaigns, 9 countries that carried out HPV-related vaccination and/or promotional efforts; 7 countries that focused on vaccinating occupational risk groups; and 3 countries that conducted indiscriminate polio vaccination. A wide variety of social communication and educational activities were also carried out, as well as health worker training and the integration of other preventative interventions with vaccination; the Caribbean remained a leader in these endeavors.

The success of VWA has served as a model for other Regions of the World Health Organization in the implementation of their own vaccination week initiatives- Europe (2005), the Eastern Mediterranean (2010), Africa (2011), the Western Pacific (2011), and South-East Asia (2012)- each adapted to the unique needs of Member States. 2012 marked the 10th anniversary of VWA and also the first celebration of World Immunization Week (WIW), as an overarching framework for all regional celebrations. During both 2012 and 2013, more than 180 countries participated at the global level Through the leadership of

Barbados, WIW was endorsed in May 2012 through a resolution during the World Health Assembly and is now included on WHO's corporate calendar.

VWA 2014 will be celebrated from April 26th-May 3rd. The Regional slogan selected for 2014 is "Vaccination: your best shot", which was chosen in order to take advantage of the 2014 World Cup in Brazil and the need to encourage vaccination amidst such a global sporting celebration in order to protect the Americas against the importation of disease.

Recommendations

- VWA should continue to be supported as an initiative that strengthens routine vaccination programs in the Region and helps to ensure political commitment to them.
- The use of VWA as a platform for the integration of other preventative interventions should be continued in countries where it is applicable, and countries should also continue to explore methodologies to evaluate VWA's impact on the routine program.

Countries met in 5 working groups of 5 countries each, for peer discussion regarding the implementation of each country's 2013 plan of action and peer review of their proposed plan of action for 2014. Countries were instructed to specifically include in their 2014 revised plans of action activities in relation to the Directing Council Resolution for Sustaining Measles, Rubella and CRS elimination, and activities for Vaccination Week in the Americas, 2014.

All countries' plans of action were reviewed and all countries submitted their Plan of Action for 2014.

9. HPV Vaccination and Cervical Cancer Prevention and Control

9.1. Update on HPV vaccine introduction in the Americas

As per November 2013 there were 14 countries in the Americas with universal HPV vaccination, including the French Departments, the United Kingdom Territories and the Dutch Municipalities. One country targets the female population from 11 – 12 years and males from 11 – 12 years (HPV4). The other countries target females in different age groups, between 9 and 15 years.

The WHO Global Advisory Committee on Vaccine Safety (GACVS), in its meeting of June 2013 issued the following statement: "... 4 years after the last review of HPV vaccine safety and with >175 million doses distributed worldwide and more countries offering the vaccine through national immunization programmes, the Committee continues to be reassured by the safety profile of the available products."

TAG recommends 2- and 3-dose extended HPV immunization schedules for girls aged 9–13 years as they can offer immunological, programmatic and financial advantages. TAG also recognizes the need to gather data on a longer term for 2-dose schedules.

With regard to the age for vaccination it is stated that the best age of vaccination depends on local conditions as it should balance four factors:

1. Vaccine immunogenicity – Favors earlier vaccination
2. Onset of sexual activity – Same
3. Vaccination in schools – Same

4. Community acceptability – Favors later vaccination

The target age groups should be within age of 9–13 years; several factors suggest that starting at a younger age is probably preferable.

Active components of current vaccines are virus-like particles (genetically expressed capsid protein, no live or killed viruses) and known adjuvants. These vaccines provide an immunogenicity and efficacy against HPV16/18 endpoints that are as optimal as they possibly can—in absolute terms and in comparison to other vaccines. Emerging evidence suggests an effectiveness that is far greater than expected. The safety profile is proven based on 170 million doses distributed worldwide and based on active post-marketing surveillance.

9.2. Country experiences with HPV vaccination

Guyana

HPV was introduced into the immunization program in 2012. Despite challenges from the media at the initial start up of the program, the EPI has managed to initiate the program in four regions. More than 20,000 doses of vaccine were donated by the manufacturer. Since the inception of vaccination, 18,000 doses have been administered to girls aged 10-13 years. Three adverse events have been reported, which have been resolved. Plans are underway for the expansion of vaccination to other regions and an additional 3,000 HPV doses were procured through PAHO's Revolving Fund.

Trinidad and Tobago

The HPV school-based program in Trinidad and Tobago was introduced in September 2012 to a cohort of girls between the ages of 11 to 13 years, with a target population of 20,000. To implement the program the following steps were taken: obtainment of cabinet approval; procurement of 60,000 doses of quadrivalent HPV vaccine; sensitization of health care workers, members of school boards, principals, teachers, religious boards, national parent teacher associations, and parents; and training of community nurses. The program began with immunization at two schools but was halted due to objections raised by the Catholic Board of Education, which has negatively affected the program. HPV vaccination will be restarted in the near future with continuing sensitization sessions.

Barbados

Barbados highlighted their experience with the introduction of the HPV vaccine, underlining the steps in the decision making process that led to vaccine introduction, as well as the logistics required for implementation of vaccination in secondary schools. The target population for vaccination is females between the ages of 11 and 12 years. Challenges with vaccine introduction to be considered were also discussed and include negative press, non-consent by parents and negative reactions from religious groups. Moving forward, the need for continual education and sensitization, maintaining high vaccine coverage and having a screening program for cervical cancer were all underlined.

9.3. Experiences with ProVac CERVIVAC cost-effectiveness analysis

Belize conducted a Cost Effectiveness Analysis (CEA) utilizing the CERVIVAC model developed by the ProVac Initiative with technical assistance provided by PAHO. Belize is among the countries in the

Americas with the highest incidence and mortality due to cervical cancer. A study on HPV types conducted among a group of women in 2007 indicated that types 16 and 18 were most prevalent, and women are more affected during their productive years. The CEA results indicate that the vaccine is highly cost effective, although the cost of the vaccine will increase the current EPI budget by 60%. For each vaccinated birth cohort of girls, 51 deaths and 69 cases of cervical cancers will be prevented. The Chief Executive Officer and the Director of Health Services have committed to submit the request as a Cabinet Paper for approval. The vaccine will be included in the national schedule, and the vaccines will be purchased through the Revolving Fund. Much remains to be done, including a communication plan that will be integrated into the operational introduction plan.

Recommendations

- Countries and territories should consider HPV vaccine introduction in the context of a comprehensive review of their national cervical cancer prevention and treatment programs. A progress report on the implementation of the work plan developed during the present meeting should be submitted at the next meeting.
- Decision-making on HPV vaccine introduction and changes in screening strategies should be based on evidence—that is, a thorough evaluation of the burden of disease, of the cost-effectiveness of the proposed measures and of their financial and programmatic sustainability. ProVac's Cervivac tool is an invaluable tool for carrying out integrated cost-effectiveness analyses at the national level.
- Special projects and HPV vaccine donations should only be undertaken after considering the sustainability of the intervention after the end of the project or donation.
- The Caribbean sub-region should establish a small working group to determine strategy and method for target setting and monitoring of coverage for cervical cancer screening, as well as guidelines for doing Pap smears.
- Best practices in terms of resources/materials to be used for training should be shared among countries.
- Countries should consider sub-regional training in risk communication and development of media campaigns, as well as advocacy with policy makers.
- Countries should share communication strategies used to improve awareness and coverage for cervical smears.
- A sub-regional meeting of the working group should be held to assess achievements (since 2007), determine the next steps to be taken and the timeframe for achievements, and develop a new work plan.

10. EPI Revolving Fund

10.1 Operational aspects of the EPI Revolving Fund

The Revolving Fund of PAHO is a cooperation mechanism for the joint procurement of vaccines, syringes, and related supplies for participating Member States. Through the Revolving Fund, for almost 35 years, participating Member States have ensured a continuous supply of high-quality products at the lowest possible price for their immunization programs thanks to the economies of scale that these Member States provide. Based on the principle of equity, and thanks to economies of scale, all participating Member States have access to the same products, offered through the Revolving Fund at the lowest price, which is a single price independent of the country's size or economic situation.

Through a multidisciplinary professional team in the areas of immunization, procurement, vaccine quality control, finance, and legal affairs, the Revolving Fund manages the planning and consolidation of demand, negotiations with producers, placement of purchase orders, coordination with suppliers and monitoring of shipments, as well as financial aspects involving paying suppliers and billing countries. The Revolving Fund has been a critical factor in making the Region of the Americas a global role model for the success of immunization programs and for its successful introduction of new vaccines. For this reason, promoting its achievements and protecting its well-being is in everyone's interest.

Recently, in order to face the challenges of the current environment in which it functions and which endanger the continuity of its contributions to the progress and financial sustainability of the national immunization programs in the Region, the 52nd Directing Council approved Resolution CD52.R5 (2013) which ratified the principles, terms and conditions, and procedures of the Fund for the benefit of public health in the Americas.

Recommendation

Countries must provide accurate forecasting projections of all vaccine requirements.

11. 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: on-time reporting and the percentage of sites reporting to CAREC, now CARPHA. 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. Barbados is the recipient of the 2013 Surveillance Award.

Awards for the second and third places went to Montserrat and Belize, respectively.

In addition to the surveillance awards, a certificate of achievement and recognition was awarded to Jamaica for maintaining excellent achievement indicators for the Immunization Program.

The Henry C. Smith Immunization Award is presented this year to Turks and Caicos Islands. The award is in honor of Mr. Henry C. Smith, who was the first PAHO-EPI technical officer for the Caribbean sub region. His service in the sub region spanned 18 years. The immunization trophy is awarded to the country that has made the most improvement in EPI.

Participants at the 29th 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.