



# Immunization Newsletter

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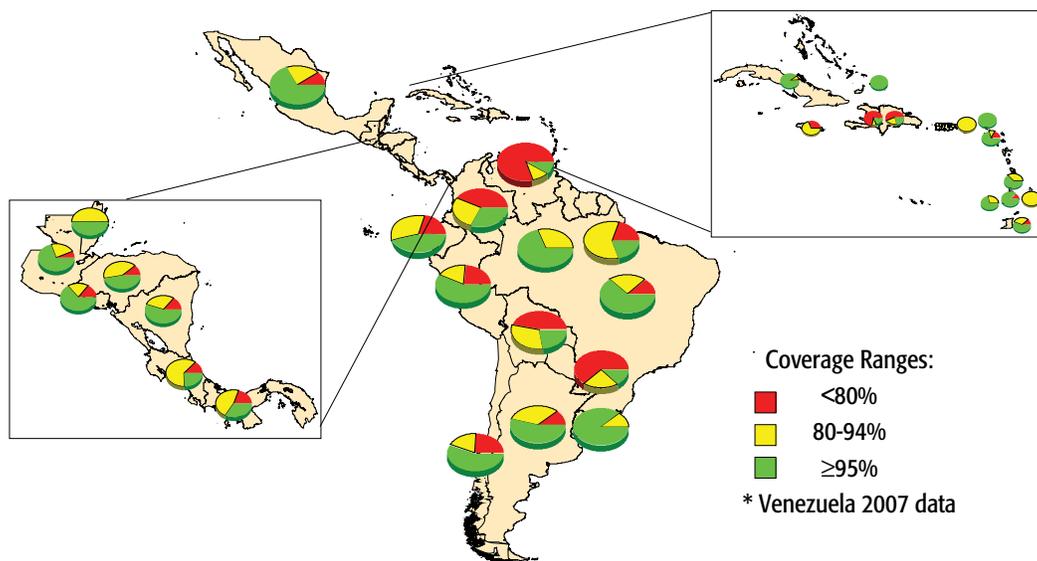
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## XVIII TAG Meeting Immunization: Prioritizing Vulnerable Populations

The XVIII Meeting of the Technical Advisory Group (TAG) on Vaccine-preventable Diseases of the Pan American Health Organization (PAHO) was held from 24-26 August 2009 in San José, Costa Rica. TAG meets every two years and functions as the principal forum for providing advice to PAHO Member States on vaccine policies and disease control efforts. The following is a summary of TAG's technical deliberation and recommendations as presented in the final report.

The XVIII TAG meeting focused on the challenges imposed by the current influenza A(H1N1) pandemic and the next steps to document and verify the elimination of measles, rubella and congenital rubella syndrome in the Americas, while strengthening routine immunization. As he opened the meeting, Dr. Ciro de Quadros, TAG President, highlighted the progress achieved by the Americas and recognized the major challenges the Region must still face. Dr. Socorro Gross-Galiano, Assistant Director, PAHO, remarked on the technical strengths of the Expanded Program on Immunization (EPI) and the political support of Member States, who consider immunization as a public good. Dr. Daisy Mafubelu, Assistant Director, Family and Community Health, World Health Organization (WHO), reiterated WHO's commitment to the strengthening of EPI in all WHO Regions. Dr. María Luisa Ávila, Minister of Health, Costa Rica, declared her country's commitment to advancing the EPI in the Region. Gina Tambini, Manager, Family and Community Health, PAHO, referred to the theme of the meeting, *Immunization: Prioritizing Vulnerable Populations*, and remarked that the Regional social and economic conditions must be taken into consideration and primary health care strengthened.

Figure 1. Percentage of Municipalities by DTP3 Coverage Levels, Latin America and the Caribbean, 2008\*



Source: PAHO-WHO/UNICEF Joint Reporting Form, 2009

## Rubella, CRS, and Measles in the Americas

The Region of the Americas has made extraordinary progress in rubella and congenital rubella syndrome (CRS) elimination, with an estimated 112,500 CRS cases prevented in Latin American and the Caribbean over a fifteen-year period. Endemic virus circulation has been limited to only one country (Argentina). The last confirmed indigenous rubella case was reported in epidemiological week 4 of 2009. Canada and the United States have reported 3 and 4 import-associated rubella cases (genotype 2B in the United States), respectively. In 2008-2009, the Americas reported a total of 40 CRS cases in Argentina (n=3), Brazil (n=33), Chile (n=2), Mexico (n=1), and the United States (n=1).<sup>1</sup>

In November 2002, D9 virus transmission was interrupted. The last measles case associated with that outbreak occurred in Carabobo, Venezuela. Since 2003, imported and import-associated measles cases have been reported in historically low numbers in the Americas: 119 in 2003, 108 in 2004, 85 in 2005, 237 in 2006, 167 in 2007, 207 in 2008,<sup>2</sup> and 81 in 2009.<sup>3</sup> In the period 2008-2009, 199 secondary cases resulted from a total of 69 importations, while for 24 cases the source was unknown.<sup>3</sup> Measles cases reported in the Americas have been isolated and/or sporadic and outbreaks have resulted in a limited number of cases secondary to importation, with outbreak size ranging from 1 to 52 secondary cases in Canada and the United States, re-

- 1 Data until epidemiological week 31/2009.
- 2 Preliminary data.
- 3 Data until epidemiological week 31/2009.

Several partners, such as the Centers for Disease Control and Prevention (CDC) of the United States, the Canadian Public Health Association (CPHA), the Global Alliance for Vaccines and Immunization (GAVI), UNICEF, the United States Agency for International Development (USAID), Rotary International, and Sabin Vaccine Institute, reaffirmed their support to PAHO's immunization program and national programs during an Interagency Coordination Committee Meeting.

In the Americas, immunization has been responsible for nearly one-quarter of the reduction in mortality in children aged <5 years between 1990 and 2002, making a significant contribution to the achievement of the Millennium Development Goals (MDGs) and the goal of the WHO's Global Immunization Vision and Strategy (GIVS). However, the Region still faces substantial epidemiological, demographic, and social challenges. New vaccines and new ways of organizing and delivering services have provided hope for addressing those challenges. PAHO, through the Regional Immunization Vision and Strategy (RIVS), has developed a road map to offer all the Region's inhabitants the opportunity to receive the vaccines capable of protecting them against the greatest possible number of diseases, using an integrated approach in the context of family and community health, and also based on PAHO's principles of equity, quality, universal access, solidarity, and Pan Americanism. TAG fully endorses the RIVS and the road map.

## Routine Immunization

Routine coverage for BCG, DTP-3, and polio-3 in children aged <1 year and measles-containing vaccines in children aged 1 year remains over 90% at the Regional level. Also, all countries in the Region include measles-rubella containing vaccines in their routine immunization schedules. All countries but Haiti are using *Haemophilus influenzae* type b (Hib) and hepatitis B vaccines for infants, and 35 countries and territories were using the seasonal influenza vaccine targeting various groups by 2008.

While the reported coverage at national level is high throughout the Region, heterogeneity in coverage exists at municipal level, with a significant proportion of municipalities reporting coverage <95% (Figure 1).

Given that equity is a key principle of PAHO's technical cooperation, national immunization programs, with PAHO support, should continue to focus on reaching every family in these low-performing municipalities.

## Recommendation:

- TAG reaffirms the recommendation that all countries should achieve 95% vaccination coverage with all antigens in every municipality.

## Pandemic Influenza

**1. Epidemiological Situation:** Beginning in mid-March 2009, surveillance systems in Mexico began to report a sharp increase in cases of acute respiratory disease, characterized by cases of influenza, accompanied by severe pneumonia. This increase began when cases of seasonal influenza typically started to wane. The number of cases continued to increase during the first weeks of April when a new influenza A strain (H1N1) was identified. During the same time period, the United States and Canada also began to report confirmed cases of influenza A(H1N1).

Given the emergence of the new influenza strain and its subsequent global spread, WHO moved through the pandemic phases, declaring pandemic phase six on 11 June 2009. Previously healthy young adults have been a particularly affected population group. The majority of influenza A(H1N1) cases have presented with mild symptoms, including cough, fever, sore throat, malaise, and headache; gastrointestinal symptoms have also been observed. Severe illness has been characterized by pneumonia and respiratory insufficiency, whereas bacterial co-infection has been infrequent. Risk factors for severe illness are emerging and appear to include pregnancy, heart disease, diabetes, asthma, pulmonary emphysema, immunodeficiency, and obesity.

**2. PAHO's Regional Plan for Pandemic Vaccination:** As part of PAHO's technical cooperation activities with Member States in response to the influenza A(H1N1) pandemic, a Regional Vaccination Plan for Pandemic Vaccination was developed and distributed to Member States in May 2009. Ensuring equitable access to vaccine, the two main objectives of this plan are to (a) strengthen seasonal influenza vaccination in the Region and (b) assist Member States in their preparation for the introduction of influenza A(H1N1) pandemic vaccine.

As of 21 August, the majority of country and territories had estimated the need to vaccinate approximately 200 million people. As more information becomes available concerning dose requirements and finalized target groups, this consolidation will need to be revised. Because intense public demand for influenza A(H1N1) vaccine is expected to be coupled with initial vaccine shortages, messages will have to be elabo-

rated carefully to clearly communicate national target groups, in essence suppressing the public turnout for vaccination. This presents a unique communication situation in the Region that will need to be handled carefully.

Considering that influenza A(H1N1) vaccine supply will be limited, countries will need to prioritize risk groups. On 7 July 2009, WHO's Strategic Advisory Group of Experts in Immunization (SAGE) recommended that countries should consider three objectives (and associated population groups) when deciding upon vaccination priorities: protecting essential health infrastructure (vaccinating health care workers), reducing morbidity and mortality (vaccinating individuals with chronic disease), and reducing virus transmission (vaccinating school children). After considering the current context, SAGE recommended the following population groups (edited to reflect age ranges more commonly managed in the Region): Health care workers; pregnant women; population aged >6 months with chronic disease; healthy young adults aged 19-49 years; school children aged 5-18 years; children aged 6 months to 4 years; and healthy adults aged >50 years.

As with all new vaccines, the detection of events supposedly attributable to vaccine or immunization (ESAVIs) will be essential. Neurological ESAVIs are one specific concern. Guillain-Barré Syndrome (GBS) is a rare condition with an annual incidence of 10-20 cases per one million adult population and has been associated with many respiratory and gastrointestinal illnesses. During the swine influenza vaccination campaigns of 1976 in the United States, the increase in the GBS cases above the background rate was approximately one case per 100,000 persons vaccinated. Through the surveillance of acute flaccid paralysis (AFP) from 2000-2008 in the Americas, approximately 10,500 GBS cases were diagnosed, resulting in an average incidence of 0.82/100,000 aged <15 years.

**3. Recommendations:** Considering the current dynamic epidemiological situation of the influenza A(H1N1) virus and the current SAGE recommendations concerning the use of an influenza A(H1N1) vaccine, TAG makes the following recommendations, which may need to be updated based upon evolving information.

- The national objectives for vaccination against pandemic influenza should be to reduce morbidity and mortality and keep health services functioning. Therefore, priority groups for vaccination should be health care workers, pregnant women, and persons aged >6

months with chronic diseases (heart disease, diabetes, respiratory conditions, immunodeficiency, obesity). Depending on the epidemiological situation, availability of resources, and EPI capacity, TAG suggests the following additional risk groups to be prioritized: children aged 6 months to 4 years, healthy children aged 5-18 years, and healthy adults aged 19-49 years.

- Due to the annual high morbidity and mortality caused by seasonal influenza viruses, vaccination with the seasonal vaccine should be continued. Technical recommendations regarding the simultaneous administration of both influenza vaccines should be followed, when applicable. Continued epidemiological monitoring of the circulating influenza strains should be continued to inform decisions regarding the future composition of influenza vaccines.
- Countries should conduct retrospective studies to calculate baseline rates of GBS in different populations so that potential changes in the incidence of GBS associated with influenza A(H1N1) virus circulation, and potentially with influenza A(H1N1) vaccines can be detected.
- Countries should monitor the following events during the introduction of the vaccine: (1) serious events (require hospitalization, life-threatening, cause disability, fatal), (2) new events, (3) rumors, (4) events that occur in groups of people, and (5) programmatic errors.
- Countries should prepare social communication strategies to maintain public trust by informing in a clear and transparent fashion; ensure that individuals and their families are using mitigating interventions for prevention; ensure that the public fully understands the recommendations and the reasons for vaccination of priority groups; and understand the general benefits and risks of events associated with vaccination when they occur.
- PAHO and WHO should continue to strengthen and prioritize the global regulatory network and national regulatory bodies that comply with WHO policy.
- In unique emergency situations, TAG endorses the SAGE recommendation which allows for countries to buy unlicensed vaccine. In these situations TAG also recommends that national regulatory authorities fast track their licensing procedures.
- In order to ensure comparability, countries should follow PAHO/WHO guidelines to strengthen and standardize surveillance systems.
- Ministries of Health should continue strengthening national influenza centers and influenza

laboratories by allocating more resources.

- Countries should conduct retrospective hospital-based studies to more accurately determine morbidity and mortality of influenza A(H1N1).
- To promote dose-sparing and ensure equitable access to the limited pandemic vaccine supply, adjuvanted vaccine should be used whenever possible.
- Industrialized countries in the Region of the Americas with abundant pandemic vaccine access are encouraged to contribute vaccine supplies to countries with considerable less access. To do this, they should consider limiting their vaccine interventions to priority groups, as seconded by SAGE and TAG.
- Recognizing that Brazil and Mexico are embarking on influenza vaccine production, TAG encourages PAHO to develop a Regional strategic plan that will ultimately lead to Regional vaccine self-sufficiency.
- PAHO should revitalize the supply chain alliance that in the past successfully identified unused oversupply of vaccine in some countries that could be used in other resource-poor countries.
- To assure equitable access to an influenza A(H1N1) vaccine, countries should use the PAHO Revolving Fund for Vaccine Procurement to buy vaccine.

### Poliomyelitis and Containment of Wild Poliovirus in Laboratories

TAG supports the need to minimize the potential for reintroduction of wild polioviruses into communities through containment of poliovirus strains in the laboratories. Most countries of the Region of the Americas have concluded Phase 1 of the Plan of Action for Containment, corresponding to the conduction of a survey and the elaboration of a national inventory of laboratories that may have stored wild poliovirus or potential infectious material. TAG received a report on containment and notes the progress that has been made in containment activities in the Region and looks forward to the final report that the Regional Commission on Containment will send to the Global Commission.

Acute flaccid paralysis (AFP) surveillance remains in place in the American Region and the polio laboratory network continues to conduct timely analysis of specimens of AFP cases.

As long as global eradication and containment in the laboratories are not achieved, the risk of reintroduction of wild polio virus into the American Region remains a real threat.

### Recommendations:

- While there is poliovirus circulating in the world and the danger of importations continues, TAG recommends that the vaccine of choice remain OPV as stated in previous TAG reports and as recommended by WHO. This recommendation will continue to be reviewed as the global situation evolves.
- To reduce the risk of importations and to prevent another outbreak caused by a Sabin-derived poliovirus, countries that do not achieve OPV coverage  $\geq 95\%$  in every municipality should conduct annual OPV immunization campaigns for children aged  $< 5$  years, regardless of their vaccination status.
- Countries should maintain certification standards of AFP surveillance (compliance with surveillance indicators).
- To prevent reintroduction of wild poliovirus into their communities, all American countries should conclude phase I of wild poliovirus containment in the laboratories as requested by the Regional Commission on Containment.

### Pertussis

TAG considers that the epidemiology of pertussis must be properly studied in Latin America to guide the decision-making process, and that PAHO must support countries in this initiative. In that respect, TAG welcomes the joint CDC/Sabin Vaccine Institute/PAHO project aimed at strengthening the surveillance system in 3 countries in the American Region as a way of creating evidence that can facilitate the decision-making process in pertussis control.

### Recommendations:

- Countries must consider pertussis control as a priority and strengthen their surveillance system and control measures.
- Changes in immunization policies and control measures should only be justified with adequate documentation and analysis of the basic causes of outbreaks.
- Before shifting from the whole-cell vaccine (wP) to the acellular vaccine (aP), countries should take into consideration the impact of the change on the immunization schedule, delivery issues, and affordability.
- Since adding boosters to the primary three-dose schedule will extend the duration of the immunity, countries should apply a 4<sup>th</sup> DTP dose as part of the regular vaccination schedule. The coverage of the 4<sup>th</sup> DTP dose must be monitored and must become part of the reporting system.
- During outbreaks, immunization of newborns

can begin at 6 weeks of age, especially if that age group is being affected. Death prevention in neonates will rest in community awareness and medical protocols. The importance of obtaining specimens for culture, especially in neonates, should be underscored.

- The current emphasis on PCR for pertussis diagnostics in the field makes obtaining a culture appear to be less important. However, since PCR can result in false positives, it should be stressed that obtaining specimens for culture is still essential for confirming the diagnosis, especially in neonates.

## Yellow Fever

Yellow fever is a zoonosis found in extensive areas of subtropical and tropical Africa and the Americas. In the past 30 years, yellow fever virus activity in the Americas was confined to the enzootic area shared by Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Panama, Peru, Suriname, Trinidad and Tobago, and Venezuela; however, since late 2007, the Region has witnessed intense circulation of the yellow fever virus, with extensive epizootics and outbreaks of human cases, expanding the enzootic area to Paraguay and northern Argentina.

In late 2007, Paraguay reported its first yellow fever case in 34 years, as part of a large epizootic wave which began in Brazil. The first case in Paraguay was reported from the north of the country; the disease subsequently spread southward, with 28 confirmed yellow fever cases, including a cluster of 9 cases of urban transmission of yellow fever detected in the metropolitan area of Asunción. Prior to this, the last confirmed outbreak of urban yellow fever in the Americas had been in Brazil in 1942. In Argentina, epizootics and monkey deaths were reported from the Misiones and Corrientes Provinces in January 2008. An outbreak of eight yellow fever cases in humans was reported from the Misiones Province in February. Prior to this outbreak, Argentina had not reported any human cases of yellow fever in 40 years.

**1. Yellow Fever Vaccination:** Yellow fever can be prevented with live attenuated yellow fever vaccine 17D. Over 500 million doses have been administered worldwide since its development in 1937. The yellow fever vaccine has been considered safe and effective.

Mass vaccination activities vary from country to country, from reactive campaigns to control outbreaks to preventive campaigns conducted in stages, targeting the resident population in enzootic areas, border areas, and areas where mi-

gration originates. Peru vaccinated over 10 million people in the period 2004-2007; Brazil, 90 million over the past 10 years; and Bolivia conducted a national campaign, vaccinating approximately 5 million people in 2007. In response to the 2008 outbreaks, Brazil administered over 18 million doses; Argentina, 1.5 million; and Paraguay over 3.5 million. Concerning ESAVIs, in 2007, Peru reported a cluster of 5 cases of viscerotropic disease, and in 2008, Brazil reported 6 cases, Argentina 1 case, and Paraguay 1 case.

TAG acknowledges the progress countries have made in vaccinating populations in enzootic areas through the implementation of plans for yellow fever control and the inclusion of the yellow fever vaccine in the routine schedule in most countries. However, the recent yellow fever dynamic observed makes it necessary to reassess the risk areas, considering the changing ecological and environmental conditions that favor yellow fever transmission. This will permit better definition of the areas and populations to vaccinate.

### 2. Recommendations:

- Countries with enzootic areas should consider completing their plans for yellow fever control vaccinating all residents in these areas aged >1 year. Travelers to these enzootic areas should also be vaccinated.
- Countries should assess vaccination coverage through rapid monitoring or other methodologies to ensure that the entire population living in risk areas is vaccinated.
- The four remaining countries with enzootic areas that have not yet introduced the yellow fever vaccine in their routine program should target children aged one year in order to have protected cohorts in the long term. Vaccination coverage should be maintained at over 95% in routine vaccination programs for the first year of life.
- Epidemiological information and careful yellow fever risk assessment, considering ecological, environmental, and cultural factors that favor disease transmission, should guide vaccination activities. Therefore it is important that countries maintain and improve their epidemiological surveillance systems.
- In light of outbreaks in Brazil, Paraguay, and Argentina in 2008, Regional and Global Emergency vaccine supplies were consumed in their entirety in January and February 2008. Given the limited availability of yellow fever vaccines, priority should be given to primary vaccination and re-vaccination should be avoided.
- Given the current risk of the reurbanization of

yellow fever in the Region, a comprehensive approach should be adopted that highlights vector control of *Aedes aegypti* in urban centers bordering enzootic areas. Elimination of breeding sites should be undertaken and, insofar as possible, environmental conditions should be improved so that they don't foster mosquito reproduction.

- Countries should have a risk communication plan in order to avoid crisis situations due to yellow fever outbreaks and ESAVIs related to the vaccine.
- Countries should consider adequate screening mechanisms to identify vaccine contraindications and precautions before vaccination.

## Rotavirus and Pneumococcus

**1. Rotavirus:** Two rotavirus vaccines are available on the market and prequalified by WHO. Since 2006, 14 countries and one territory have introduced this vaccine in their national vaccination schedule: in 2006, Brazil, El Salvador, Mexico, Panama, Nicaragua, the United States, and Venezuela; in 2007, Ecuador; in 2008, Bolivia; in 2009, Colombia, Guyana, Honduras, Peru, and the British territory of Cayman Islands. The countries of the Region of the Americas were the first to introduce this vaccine into their vaccination programs, and for the first time ever, a new vaccine is being introduced in developing and developed countries at the same time.

Many lessons were learned from the introduction of the rotavirus vaccine in the Region of the Americas: for example, the need for adequate evaluation of the cold chain and the logistics of the immunization program prior to introducing a new vaccine, the need for training at all levels, the importance of strengthening the network for ESAVI reporting and investigating, the importance of ensuring the sustainability of the EPI vaccine in the national budget, and the establishment of rotavirus diarrhea surveillance prior to the introduction of the vaccine and the subsequent maintenance of that surveillance as fundamental to decision-making.

**2. Pneumococcus:** Two conjugate pneumococcal vaccines are currently on the market: the heptavalent and the decavalent. The heptavalent vaccine is recommended by WHO, and the decavalent vaccine is in the prequalification process. The United States (2001), Canada (2002), Bermuda (2008), Mexico (2008), Uruguay (2008), Costa Rica (2009), and Peru (2009) have introduced this vaccine in their vaccination schedule for children aged <1 year. A 13-valent vaccine was recently licensed in some countries.

## Financial Sustainability: The PAHO Revolving Fund for Vaccine Procurement

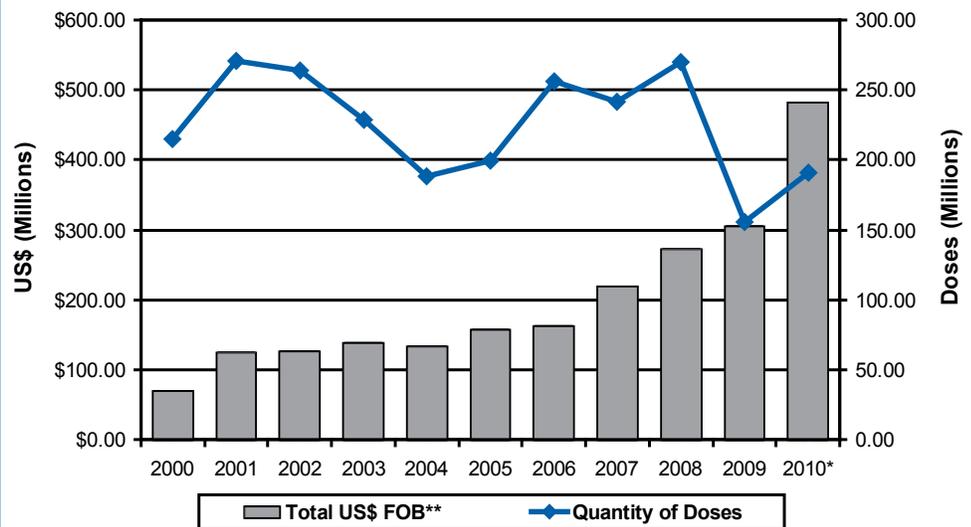
Currently, the RF offers 28 antigens, in addition to syringes, needles, and cold chain equipment. In 2008, 41 countries and territories bought vaccines through the RF for a total amount of US \$271.7 million. Demand forecast for 2009 is approximately \$369.5 million.

During its 30 years of existence, the RF has faced many challenges and risks. Current challenges include the introduction of new vaccines at high prices and with a single provider, the participation of new actors in the field of immunization, and the development of new market mechanisms. Member States have manifested their desire to see the RF adapt to those new conditions while maintaining the principles of Pan Americanism, equity, solidarity, and universal access.

### Recommendations:

- TAG recommends the continued and strengthened participation of Member States in the Revolving Fund, in order to benefit from the consolidated purchase of vaccines, syringes, and other supplies, and to maintain the Revolving Fund as a mechanism of collaboration and solidarity.
- PAHO must continue to find ways to increase the level of capitalization of the Revolving Fund in order to maintain the line of credit at levels allowing for an adequate and timely

Figure 1. PAHO Revolving Fund: Vaccine Doses Purchased and Total Cost, 2000-2010



2001: Increase BCG and Hepatitis B

2006: Increase polio (Brazil)

\* 2010: Estimated and includes H1N1 vaccine

2004: Reduction Measles, MR, MMR, and Polio

2008: Increase MR (Brazil)

\*\* Free on Board

Source: PAHO Revolving Fund for Vaccine Procurement.

response to the needs of Member States.

- PAHO must work internally with all parties involved in the management of the Revolving Fund in order to improve its operational efficiency.

- In view of current challenges, the PAHO Revolving Fund for vaccine procurement must remain faithful to its principles of Pan Americanism, equity, universal access, and solidarity.

### 3. Recommendations:

- Countries should improve or begin sentinel surveillance of rotavirus diarrhea, pneumonia, and bacterial meningitis in children aged <5 years, so that the impact of vaccine introduction can be adequately assessed and the prevalence of circulating strains and changes in the epidemiological profile of the disease monitored.
- All countries should systematically report their surveillance data for rotavirus diarrhea, pneumonia, and bacterial meningitis to facilitate the development of an epidemiological profile for the diseases in the Region, compare the profiles of different countries, geographical areas, and seasonality, and evaluate the epidemiological changes in these diseases that could occur with the introduction of the vaccine.
- Before introducing any new vaccine, countries should develop a plan of action, based on PAHO guidelines, that includes basic activities such as the evaluation of the cold chain at all levels, logistics, training, and strengthening

of the ESAVI network.

- PAHO should continue to support the countries and encourage them to conduct special studies on the introduction of a new vaccine when necessary.
- Rotavirus and pneumococcus vaccines should be universally introduced in the immunization schedule, using vaccination regimens with evidence of efficacy in developing countries. Introducing those vaccines in priority areas (i.e., only in certain municipalities/towns or provinces) makes it more difficult to assess the impact of the intervention and might create logistical and programming problems for the EPI. Therefore, these vaccines should be introduced nationwide whenever feasible. If a country can only introduce them to priority groups, this should be done as a first step toward universal introduction.

### Human Papillomavirus

In 2008, PAHO's Directing Council approved the regional plan for integrated prevention and

control of cervical cancer. The plan calls for increased action to strengthen programs through an integrated package of services: health information and education, screening and pre-cancer treatment, invasive cancer treatment and palliative care, and evidence-based decisions on whether and how to introduce HPV vaccines. The greatest barriers to providing equity and access to HPV vaccines and new screening technologies for HPV virus detection are the prices of the products.

### Recommendations:

- HPV vaccine should be delivered as part of an integrated package including screening, health promotion, pre-cancer and cancer treatment, and palliative care.
- Countries should conduct cost-effectiveness studies to make evidence-based decisions regarding HPV vaccine introduction into the regular program. PAHO should continue to provide technical cooperation to conduct these studies and gather the framework of evidence needed to make informed decisions.

- The PAHO Secretariat should report back to the next TAG on the progress of the implementation of the Regional Plan for integrated prevention and control of cervical cancer, including studies being conducted in Jamaica and elsewhere on disease burden, surveillance implementation, and economic analyses.

## Evidence-based Decisions

PAHO's ProVac Initiative is working to enhance national capacity to make informative evidence-based decisions regarding new vaccine introduction. Next year's work plan includes the following tasks:

- Complete modifications of the pneumococcal model.
- Hold the first meeting of Economic Centers of Excellence.
- Continue to develop the OLIVES<sup>1</sup> on-line database of the ProVac website which will serve as a repository of data for developing country use when conducting economic analyses.
- Strengthen influenza tools to provide an op-

<sup>1</sup> OLIVES (On-Line International Vaccine Economics and Statistics) is a website presenting country-specific statistical parameters used in economic evaluations, bringing together internationally comparable statistics from a variety of data sources (WHO, UNICEF, UN, Demographic and Health Surveys, World Bank). Available at <http://gcpsys.com/>.

portunity for countries to evaluate the impact of pandemic vaccine.

- Strengthen disease e-learning tools for evidence-based decision making.
- Conduct country-specific economic studies in Jamaica, Trinidad & Tobago, and Honduras on HPV vaccination program costs.
- Convene first meeting of an ad-hoc scientific panel of experts to review the scientific basis of the economic tools being developed.

Examples of work were presented from Bolivia and Ecuador. The cost-effectiveness of rotavirus and pneumococcal vaccine introduction, respectively, were analyzed using data on the incidence of the disease, health services utilization and costs, vaccination program costs, and vaccine coverage and efficacy rates. In Bolivia the data were collected from sentinel sites over a one-year period and were analyzed from the perspective of the health system. Using US \$19 to fully vaccinate a child, they estimated that with rotavirus vaccination the cost of averting a DALY to be \$213. In Ecuador, data were analyzed from the perspective of the society. Using \$79.05 to fully vaccinate a child, Ecuador determined the cost of averting a DALY to be \$2,640.

**Recommendations:** TAG fully supports the implementation of the ProVac initiative.

- The ProVac initiative should assist countries

with the development of impact studies for influenza and other vaccines and assist them with reporting results at the next TAG.

- ProVac should continue its efforts to standardize approaches, to the extent possible, when conducting economic studies.

## Coverage Data Quality

- TAG reaffirms the recommendation that systematic and periodic assessment of coverage data accuracy, consistency, completeness, and timeliness should become a regular activity within national immunization programs. This assessment should be conducted within the context of regular on-going evaluation and supervisory activities.
- Monitoring numerator trends by month and year and calculating drop-out rates between all doses, including DTP2, and monitoring denominator variations should be done systematically at all levels.
- Immunization programs should be aware of the conduction of surveys that, among other health indicators, calculate vaccination coverage in order to ensure that questionnaires are adequate and interviewers properly trained to assess vaccination status, and that the results are internally consistent between biologicals.
- PAHO's immunization program should develop guidelines regarding coverage monitoring and data quality, and establish strategic alliances with entities specializing in vital statistics and demography to promote the generation and availability of accurate denominators figures to calculate vaccination coverage.
- PAHO should continue supporting countries to improve their immunization data quality by promoting the evaluation of the quality of their immunization data and information systems.<sup>2</sup> PAHO should also support the implementation follow-up of the recommendations resulting from such assessments.
- Countries using national computerized national immunization registries should document their experiences, successes, and lessons learned in order to share them with other countries. ■

**Note:** For a complete copy of the report, please contact the Comprehensive Family Immunization Project at [fch-im@paho.org](mailto:fch-im@paho.org) or see the project's webpage at [www.paho.org/immunization](http://www.paho.org/immunization).

## Integrated Surveillance

In 2007, the World Health Organization issued a document entitled *Global Framework for Immunization Monitoring and Surveillance*,\* with the object of recommending actions to improve the surveillance of vaccine-preventable diseases, primarily taking advantage of the strengths of the existing surveillance systems. In the Region of the Americas, Costa Rica was selected for the project's pilot study, with the endorsement of the country's national authorities and the collaboration of the Pan American Health Organization and U.S. Centers for Disease Control and Prevention.

The objectives of the integrated surveillance are basically geared to ensuring better use of human and financial resources, improving the effectiveness of activities, and maintaining the quality of services and information. Although the ability of health services to monitor existing vaccine-preventable diseases is the ideal, it is difficult to operationalize, demanding teamwork and coordination of functions.

The pilot project will be a way to identify strengths and weaknesses of the integrated surveillance process, document its progress, and recognize advances, disadvantages, advantages, and lessons learned. The information can be shared with all countries interested in adapting the methodology and contributing to the implementation of integrated surveillance in the Region and other regions as well.

### Recommendation:

- The different phases of the pilot project for integrating the surveillance of vaccine-preventable diseases in Costa Rica should be strengthened, monitored, and evaluated to identify obstacles to project implementation so that it serves as an example for other countries.

\* Global framework for immunization monitoring and surveillance. Available at: [http://www.who.int/immunization/documents/WHO\\_IVB\\_07.06/en/](http://www.who.int/immunization/documents/WHO_IVB_07.06/en/).

<sup>2</sup> These systems are defined as the people involved in data collection and processing, data recording practices, and activities that process and aggregate the data and information, including software if available, in a given country.

**RUBELLA, CRS, AND MEASLES** from page 1

spectively, and from 1 to 2 secondary cases in Latin America and the Caribbean. Sixty percent of measles importations to the Americas for the same period have come from Europe; these outbreaks occurred in Argentina, Canada, Chile, Ecuador, Jamaica, Peru, and the United States.

Following the interruption of indigenous measles virus circulation in 2002 in the Americas and in light of the achievements in the implementation of immunization strategies and the accelerated reduction in the number of rubella cases, Resolution CSP27.R2 was adopted during the 27th Pan American Sanitary Conference in October 2007. The resolution authorized the formation of an international Expert Committee and urged PAHO Member States to establish national commissions to document and verify elimination in each country of the Region. This decision marked the beginning of the process for the documentation and verification of the interruption of endemic measles and rubella transmission in the Americas.

**Recommendations**

TAG congratulated Member States and their health workers for the tremendous efforts made toward achieving and maintaining measles, rubella, and CRS elimination and for the rapid response to importations to the Americas. TAG also urges other regions to eliminate measles and rubella as a step towards eradication. In addition to the following recommendations, TAG encourages countries to continue to adhere to previous TAG recommendations regarding measles, rubella, and CRS surveillance, vaccination strategies, and laboratory issues.

**Immunization Strategies:**

- Countries should routinely maintain high, homogenous coverage (>95%) by municipality through the administration of the 1<sup>st</sup> routine dose, monitor the accumulation of susceptibles, and continue the implementation of high quality nationwide *follow-up* campaigns to ensure the vaccination of the entire cohort as a second opportunity to give the first dose to those children that were missed by the routine program.
- In accordance with previous TAG recommendations, any resident of the Americas traveling to areas with reported measles or rubella cases should be immune to measles and rubella and provide proof of vaccination before departure.
- Only where coverage  $\geq 95\%$  with each of the

two routine MMR doses is guaranteed for all municipalities can the *follow-up* campaigns be waived and, before introduction of routine MMR2, countries should determine a suitable age for administration of this dose, define an accurate denominator, implement a nominal registry, monitor coverage, and track defaulters.

**Surveillance:**

- Countries should achieve an adequate level of preparedness by developing national plans for preparation and rapid response to an importation and potential outbreaks.
- Countries should actively involve the private sector in measles, rubella, and CRS surveillance to support the rapid detection of importations and response to outbreaks and to strengthen immunization activities.
- Countries should guarantee the full integration of measles and rubella surveillance systems and ensure the completion and continuous monitoring of the recommended standardized measles/rubella surveillance indicators to attain high-quality surveillance, emphasizing high-risk and "silent" areas.
- Countries that have reported the last rubella and CRS cases should implement activities, such as active case searches and monitoring of virus excretion of identified CRS cases, in order to document and verify the interruption of endemic virus transmission.
- TAG reiterates the previous recommendation to increase sensitivity and quality of the CRS surveillance system by strengthening sentinel site reporting.

**Laboratory:** Documentation that elimination of measles and rubella has been achieved requires that each national laboratory produces the highest quality surveillance data possible. The final report and recommendations of the Measles/Rubella Laboratory Network Meeting are endorsed by TAG.

- Laboratories must be fully certified according to the current WHO and PAHO LabNet standards.
- Countries should establish priorities for obtaining viral samples with emphasis on, for example, border areas, industrial areas, areas with frequent foreign travel, and contacts with a high likelihood of exposure.
- Laboratory and epidemiologic teams from each country should use the specific PAHO laboratory testing guidelines for classification of sporadic measles and rubella cases according to their needs.
- Measles, rubella, and CRS cases should be

classified only after the laboratory and epidemiologic teams have reviewed all laboratory results and epidemiologic data.

- Laboratories should attempt to establish a genetic baseline of rubella and measles viruses through characterization of endemic cases or archival samples (serum, oral fluid, nasopharyngeal swab, and tissue), starting with the year 2000.
- Laboratories/countries should establish the means to support CRS case confirmation and monitoring of virus shedding by CRS cases.

**Regional Plan of Action for Documenting and Verifying Elimination:**

TAG endorses the regional plan of action for the documentation and verification of measles, rubella, and CRS elimination in the Region of the Americas. The plan of action provides an opportunity to place immunization programs as a high-ranking priority on the political agenda of countries and strengthen vaccination activities and surveillance systems.

- In accordance with PAHO Resolution CSP27.R2, 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.
- Countries should complete the analysis and evaluation of the following key components of the documentation process as described in the regional plan of action:
  - Analysis of coverage with the measles-rubella vaccine in population cohorts aged <40 years.
  - Epidemiology of measles, rubella, and CRS and the impact of vaccination strategies.
  - Quality and efficiency of integrated measles, rubella, and CRS surveillance.
  - Analysis of virologic epidemiology and verification of the absence of endemic measles and rubella virus strains (through viral detection) in all countries of the Americas.
  - Sustainability of national immunization programs to maintain measles and rubella elimination.
- Countries should prepare and implement a national plan of action for the verification of measles, rubella, and CRS elimination, with technical cooperation from PAHO and the international Expert Committee. ■

## Immunization Project Launches Three Publications

A special event took place during the XVIII meeting of the Technical Advisory Group on Vaccine-preventable Diseases to celebrate the launching of three books by PAHO's Immunization Project. *Images that inspire (The Mobilization of the Americas to Eliminate Measles and Rubella)*, presented by María Elena Carballo, Minister of Culture, Costa Rica, is a book dedicated to the health workers and the people of the Americas that made the elimination of measles and rubella possible in the Region. The *Compendium of Measles Articles* and the *Compendium of Rubella and Congenital Rubella Syndrome Articles*, presented by Dr. de Quadros, are compilations of *Immunization Newsletter* articles. Dr. Oscar Arias, President of Costa Rica, also attended the event and highlighted the progress accomplished by the Region. He remarked that while technical expertise was required to support health activities, political support and commitment from all countries were also required. He emphasized that thanks to the Expanded Program on Immunization, the Revolving Fund for Vaccine Procure-



From left to right, Dr. María Luisa Ávila, Minister of Health, Costa Rica, Dr. Oscar Arias, President, Costa Rica, María Elena Carballo, Minister of Culture, Costa Rica, and Dr. Ciro de Quadros, TAG Chairman.

ment of the Pan American Health Organization, and the TAG, the Americas have made considerable progress, within the framework of the right

to health and that those three components are essential for the advancement of populations in this Region. ■

The *Immunization Newsletter* is published every two months, in English, Spanish, and French by the Immunization Unit of the Pan American Health Organization (PAHO), Regional Office for the Americas of the World Health Organization (WHO). The purpose of the *Immunization Newsletter* is to facilitate the exchange of ideas and information concerning immunization programs in the Region, in order to promote greater knowledge of the problems faced and possible solutions to those problems.

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