



# Immunization Newsletter

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- 1 Sub-regional Meetings, 2010
- 1 Integrating ICTs into the Immunization Program
- 6 Nicaragua introduces PCV-13 vaccine
- 7 Vaccination Supplies Stock Management (VSSM)
- 8 IMeCA - Latin American Open Source Health Informatics Meeting

## Sub-regional meetings on vaccine preventable diseases, 2010

The XX Meeting of Central American countries, Mexico and the Latin Caribbean on Vaccine Preventable Diseases was held in San Salvador, El Salvador, from 6 to 8 July 2010. This meeting was attended by professionals from national immunization programs in Costa Rica, Cuba, El Salvador, Guatemala, Haiti, Honduras, Nicaragua, Panama and Dominican Republic. Mexico was unable to attend this meeting. The IV South American Meeting on Vaccine Preventable Diseases was held in Asuncion, Paraguay, from 26 to 28 October 2010 with the participation of representatives of Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Paraguay, Peru, Uruguay and Venezuela. Both meetings included the participation of representatives of the National Committees on Immunization Practices. The XXVII Sub-regional meeting of the Immunization Program Managers in the Caribbean took place in the Cayman Islands from 15 to 19 November 2010 (see box on page 6).

The Latin American meetings focused on analyzing the causes of low coverage in certain municipalities of the participating countries and on proposing measures for improvement. The verification and documentation of the elimination of transmission of measles, rubella and congenital rubella syndrome (CRS) was discussed. An analysis of the risk of reintroduction of wild polio virus to the Americas was presented. Also, it was discussed how to evaluate and draw lessons learned from the H1N1 pandemic influenza vaccine. An update on the introduction of new vaccines was given and the status of the PAHO Revolving Fund for Vaccine Procurement was discussed. Additionally, and for the first time, the countries presented their analysis and experiences to the forum based on a lottery system, followed by a panel discussion of each topic led by countries that did not give a presentation. The Latin American sub-regional meetings held workshops for countries to develop action plans to address unfinished agendas in planning immunization activities to reach everyone with vaccination.

See **SUB-REGIONAL** page 3

**Table 1. Distribution of Municipalities According to Reported DTP/penta3 Rates, Central American Countries, Mexico, Cuba, Haiti and the Dominican Republic, 2007-2009**

Year		<50% Coverage	50-79.9% Coverage	80-94.9% Coverage	≥95% Coverage*
2007	# of municipalities (N=4,134)	72	363	747	2,952
	# < 1 Year (N=3,308,309)	121,965	390,906	1,165,964	1,659,474
2008	# of municipalities (N=4,097)	151	414	1,019	2,513
	# < 1 Year (N=2,702,932)	231,563	423,142	930,341	1,113,886
2009**	# of municipalities (N=3,907)	104	397	968	2,483
	# < 1 Year (N=2,449,152)	52,204	455,704	810,396	1,130,848

\*Includes reported coverage >100%.

\*\* Coverage data for Haiti not available/included for this year.

Source: PAHO-WHO/UNICEF Joint Reporting Forms (JRF) and country reports to FCH-IM/PAHO.

## Integrating Information and Communication Technologies (ICTs) into the Immunization Program

The advent of new information and communication technologies (ICTs) offers enormous opportunities to improve the efficiency of the immunization programs. A recent systematic review of evaluations of e-health (see page 2 for definition) implementations in developing countries found that systems that improve communication between institutions, assist in ordering and managing medications, and help monitor and detect patients who might abandon care are very promising. Evaluations of personal digital assistants and mobile devices convincingly demonstrate that such devices can be very effective in improving data collection timeliness and quality [Blaya 2010].<sup>1</sup>

Free sharing of technological information and the use of open source for the development of e-Health tools promise making investments on ICT more affordable for developing countries. Several of the experiences presented during the 2<sup>nd</sup> Meeting of the group on Medical Open Source Informatics (IMeCA) for Latin America in Nicaragua (page 8 of this issue) could be adapted to be used by immunization programs in the Americas. Mobile technology, record management systems, technology for identification, barcodes, and multimedia, provide potentially useful tools to improve:

- immunization and surveillance data collection, quality, and timeliness of reporting;

See **ICT** page 2

ICTs from page 1

- individualized follow-up of schedules;
- monitoring of events supposedly attributable to vaccines and immunization (ESAVI);
- continuing education and training;
- social mobilization, and
- a more efficient management of vaccines and other supplies, and the cold chain.

**Mobile technology**, particularly mobile phones have become quite ubiquitous in most countries, and phone companies are rapidly expanding service coverage. The prevailing network standards include options for data transmission as small messages (SMS), larger messages (MMS), and regular internet connectivity (GPRS and similar). Low-cost mobile phones have over the last years acquired the capability to install and run custom made software based on the Java programming language and other free survey developer platforms. Also, the cost of data transmission has dropped substantially over the last decade, making mobile use a viable and affordable alternative. Mobile technology can allow vaccinators and health care workers to record doses given at the time of service delivery or report a suspect case electronically at the time of detection, thereby reducing time delays and errors inherent in manual processes. This may be particularly useful in areas of difficult access. Similarly, as several parents have mobile phones, health workers can send reminders (or they can be automated) via SMS or voice messages about upcoming vaccines or to notify of missed or delayed doses.

The use of current technologies, such as **platforms for Medical Record Systems (MRS)**, among others, may facilitate the development and implementation of national computerized nominal immunization registries, to allow following-up individual vaccination schedules. This type of registry ideally (1) includes enrollment at birth, or when the BCG vaccine is administered or when the reasons for not given that vaccine are registered; (2) includes a unique identifier, in addition to other identifying data: full name, date and place of birth, full name of the mother or guardian, address, phone number (landline and/or mobile), etc; (3) records vaccine dose(s) and date, and health center providing the dose; (4) allows for sending recall-reminders; and (5) allows

e-Health is defined as the “use of ICTs in support of health and health-related fields, including health-care services, health surveillance, health literature, and health education, knowledge and research,” [World Health Organization. 58th World Health Assembly Report; 16–25 May 2005. Geneva: WHO; 2005.]

aggregating data at various geographical levels, facilitating analysis using Geographic Information Systems (GIS). This type of registry can be linked with vaccine supply management modules to have a closer inventory and better management of where the vaccine are, particularly in the context of more expensive new vaccines.

**Biometrics**, or systems to collect unique, permanent, and collectable physical or anatomical characteristics of individuals and use them for identification of a person, have advanced enormously in recent years and are being used in health, including clinical trials. Common biometric approaches include the recognition of fingerprints, the iris, and palm-vein. Biometrics can be used to automate the process of subject identification. However, common approaches such as fingerprinting and iris recognition are challenging for use in children aged <3 years. Confidentiality, ethical, and legal issues need to be considered when planning to use biometrics. Similarly, the **radio-frequency identification (RFID)** is a technology used to identify and track objects (or people via objects they can wear) using communication via electromagnetic waves to exchange data between a terminal and an electronic tag attached to an object. RFID involves interrogators (also known as readers) and tags (also known as labels). RFID can be used for inventory management of vaccine, cold chain equipment, among others. It has recently been used in a pilot project aiming to follow a cohort with specific risk factors for pneumonia in Pakistan, who were using RFID bracelets to track medical care.

**Barcodes** provide an automated way to collect data about serial/lot numbers or other standardized information. Traditional barcodes are one-dimensional, coding a numeric code through the graphical display of bars with varying thickness. A newer generation, 2-dimensional barcode, the *datamatrix*, uses dots to represent information, allowing for a longer alphanumeric text to be coded. The systems to print barcode labels have become easier to use and more affordable. To read barcodes, a low-cost mobile phone with integrated camera and existing barcode decoding software libraries could be used. Barcodes can help link vaccination cards to vaccination records, manage the vaccine and syringe supply chain, keep track of cold chain inventory, among other uses. One day, it will be possible to scan the barcode of the vaccine administered to the patient, affix the barcode label to the

vaccination record and card (or scan it and add it to the electronic vaccination record), thus, facilitating the tracking of a lot in an ESAVI investigation, for example.

**Multimedia tools** and the availability of the **Web 2.0** or web applications that facilitate participatory information sharing, interoperability, and user-centered design open to the general public, such as “youtube”, make the creation of education videos more straightforward and easy to disseminate. Multimedia may facilitate training health workers in multiple components of the immunization program, and are starting to be used in training for the introduction of new vaccines, in some countries. Also, multimedia tools may help the immunization program to develop clips with general educational messages on vaccine-preventable diseases and immunization for the general population; social media sites (such as “Facebook”, “MySpace”, “Badoo”) can serve as platforms to disseminate such clips.

In summary, ICTs open the door to potentially revolutionize how immunization programs are managed and work. There are potential applications in several components of the immunization program, particularly in remote areas. Countries of the Americas are in a position to start evaluating the available options, getting to know and appraise local experiences using e-Health and mobile health (mHealth) in their country, and implementing projects of ICT in immunization, of varied scope. Documenting and sharing experiences between countries will be important to save time and resources and ultimately improve the efficiency of the immunization programs.

[We invite the readers of the \*Immunization Newsletter\* to share their experiences using ICTs.](#) ■

#### References

1. Blaya JA, Fraser HS, Holt B. E-health technologies show promise in developing countries. *Health Aff (Millwood)*. 2010;29(2):244-51.



Finger print reader, Socrates Flores Rivas Health Center, Nicaragua, 2008.

SUB-REGIONAL from page 1

## Analysis of Populations with Low Coverage and Interventions

Each country prepared a presentation analyzing the current situation of the coverage levels by municipality. The determining factors, risks and proposals for the care of populations that fail to reach appropriate vaccination coverage levels were analyzed.

### Among the many factors identified to be related to populations with low coverage, the following stood out:

- **Service provision:** abandonment of the regular schedule; reliance on campaigns to do the work of the regular program; lack of categorization of the at-risk municipalities and problems found at the local level; geographical location of service providers inaccessible to the population in remote villages; and managerial aspects of the service providers (vaccine shortages, vaccination delivery schedules that are inconvenient for the local people, staff attitudes);
- **Health care workers:** insufficient in numbers, limited training, and insufficient monitoring and capacity-building supervision;
- **Information systems:** problems with data quality: timeliness, accuracy, consistency, and inaccurate denominators;
- **Vaccines and related technologies:** problems with the development of proper vaccine and supply forecasts, inventory management problems, and deficiencies in the cold chain and its management;
- **Financial sustainability:** lack of human and financial resources for the operational aspects of the program and lack of mechanisms to secure budgets and increases according to current needs, including the introduction of new vaccines;
- **Leadership and governance:** problems created by health sector reform and the low priority of some of these excluded populations, as they do not represent a significant proportion of the population at the national level.

### Of the possible interventions identified, the following were highlighted:

- **Service provision:** detailed characterization of the municipalities with low coverage; internal and external strategies to improve access to services (examples: permanent establishments at work-places, kindergartens and schools, home visits, follow-up campaigns for measles and rubella); integrated and comprehensive health service networks; periodic

**Table 2. Distribution of Municipalities According to Reported DTP/penta3 Rates, South American Countries, 2007-2009**

Year		<50% Coverage	50-79.9% Coverage	80-94.9% Coverage	≥95% Coverage*
2007	# of municipalities (N=10,955)	510	2,068	2,860	5,517
	# < 1 Year (N=6,606,510)	228,982	1,268,825	2,447,361	2,661,342
2008	# of municipalities (N=10,377)	300	1,719	2,613	5,745
	# < 1 Year (N=6,010,2102)	77,828	819,906	2,288,788	2,823,688
2009	# of municipalities (N=10,743)	515	1,996	2,446	5,816
	# < 1 Year (N=6,256,852)	165,320	1,027,513	2,079,726	2,980,293

\*Includes reported coverage >100%.

Source: PAHO-WHO/UNICEF Joint Reporting Forms (JRF) and country reports to FCH-IM/PAHO.

review of implemented strategies; and the adjustment of operational plans in a timely manner, including revision of the hours of operation of immunization clinics;

- **Health care workers:** supervision, training, periodic evaluations, and strategies for motivating and keeping trained personnel;
- **Information systems:** coordination with the areas responsible for statistics; data quality assessments; rapid coverage monitoring and use of nominal immunization registries, as appropriate, with innovative uses of new information and communication technologies for registration and basic data analysis;
- **Vaccines and related technologies:** reinforcing the sound management of vaccine and supply inventories, as well as of the cold chain, using the technological support for inventory management and demand forecasting;
- **Financial sustainability:** creation of laws and regulations that promote the financial sustainability of the immunization program and addition of the indicator ratio of government health expenditure used for the Immunization Program into the immunization data reporting mechanism established by PAHO-WHO/UNICEF Joint Reporting Forms (JRF);
- **Leadership and governance:** municipal ownership and investment, close collaboration with the community on key activities, such as epidemiological surveillance; revitalizing work among and between sectors to better understand social determinants; encouraging shared responsibility of health with municipal authorities, social organizations, families and individuals; strengthen the leadership role of government authorities; support non-governmental organizations in their efforts to pro-

vide services; and revitalize the presentation of immunization issues in sub-regional policy forums (such as the RESSCAD)<sup>1</sup>.

## Measles and Rubella

As a follow-up to Resolution CSP27.R2 of the 2007 Pan American Sanitary Conference, a regional plan of action to document and verify the elimination of measles, rubella and CRS has been developed. The primary goal of this plan is to guide countries and their National Commissions in the preparation of the necessary data to demonstrate that the endemic transmission of these viruses has been interrupted for at least three consecutive years. National Commissions, in collaboration with national immunization programs, should finalize their country reports regarding the elimination of measles and rubella in their respective country and submit the report to the International Expert Committee (IEC) by December 2011 to provide sufficient time for revision. In turn, the IEC will summarize all country reports to verify whether elimination has been attained at the regional level. The verification of measles and rubella elimination in the Region of the Americas will be presented to the Pan American Sanitary Conference in 2012.

The participating countries in both Latin American sub-regional meetings presented their progress in the documentation and verification process mentioned above. Based on their presentations and discussions, it was possible to conclude that the information to document the interruption of endemic transmission of measles, rubella

<sup>1</sup> RESSCAD - Reunión del Sector Salud Centroamérica y República Dominicana (Central American and Dominican Republic Health Sector Meeting)

and CRS is available in most cases. But there is still much to be done to synthesize and present these data in a way that leads to conclude that the circulation of both indigenous viruses has indeed been interrupted.

#### Recommendations:

- Countries should establish their respective National Committees and develop a roadmap for the process of documentation and a timetable for assessing the achievement of the ultimate goal of verification;
  - Data analysis and presentation should focus on the documentation that supports the interruption of transmission of measles and rubella;
  - Data analysis and presentation must take into consideration a critical assessment to support elimination as per the components of the Plan of Action;
  - Data analysis must be done with the specific perspective of documenting elimination;
- Countries should conduct surveillance activities in the context of elimination, which requires retrospective active case searches to identify additional suspected or confirmed cases;
  - Other data sources, in addition to the usual ones, must be sought;
  - The consistencies/inconsistencies between different sources of information must be analyzed;
  - The relationship between epidemiology and the laboratory should be strengthened at all levels;
- Countries should continue to report confirmed cases of measles, rubella and CRS by using the additional communications channels of the International Health Regulations (IHR).<sup>2</sup>

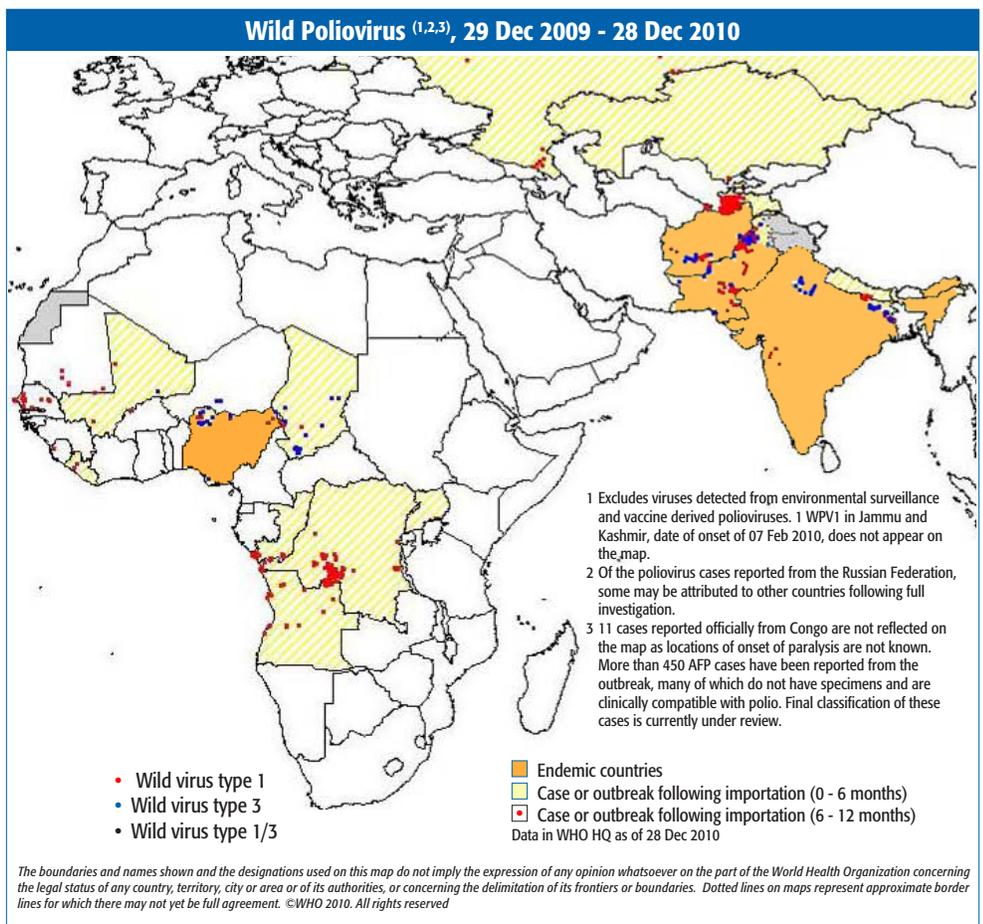
## Polio

Taking into account that wild polio virus is still circulating in Asia and Africa, as well as the large number of poliovirus importations to countries that had eliminated the disease (see map), the risk that countries of the Americas receive a virus importation and have an outbreak as a result of it was analyzed.

This risk is largely defined by exposure to travelers from areas with polio, the country's ability to detect an importation in a timely fashion (quality of its surveillance system), and the level of community protection (polio vaccination coverage).

#### Recommendations:

- Countries should improve the quality of epi-



demiological surveillance if they want to timely detect reintroduction of the virus;

- Countries should achieve vaccination coverage levels  $\geq 95\%$  in each municipality;
- Countries should analyze the performance of acute flaccid paralysis (AFP) surveillance indicators at least every 3 months at a sub-national level (by departments or provinces) and take steps to correct them if they do not meet the standards required by the Global Commission for the Certification of Poliomyelitis Eradication;
- Countries should take advantage of their National Immunization Weeks and of the Vaccination Week in the Americas to vaccinate against polio and improve herd immunity;
- Health personnel should be retrained on the importance of AFP monitoring and collecting adequate stool specimens;
- At the request of participating countries, the PAHO/WHO recommendation to continue using the oral polio vaccine until global eradication is achieved was emphasized. This recommendation was reiterated in 2009 by PAHO's Technical Advisory Group on Vaccine Preventable Diseases (TAG).<sup>3</sup>

- PAHO should develop a complete and comprehensive protocol for the response to imported polio cases or polio vaccine-derived cases.

## Pandemic Influenza A (H1N1)

During the meetings, the participating countries shared their experiences with the 2009-2010 pandemic vaccination.

#### Recommendations:

- Countries and PAHO should document lessons learned during influenza A (H1N1) vaccination;
  - Interagency and intersectoral coordination was successful in all countries and proved necessary for achieving vaccination goals;
  - Plans for risk communication, crisis prevention, and monitoring of events supposedly attributable to vaccination or immunization (ESAVI) must be key components of any vaccination campaign;
  - Scientific societies play a key role in guiding vaccination of risk groups and dealing with crisis prevention and management;
- Countries that have not yet completed their vaccination campaigns need to step-up vaccination of pregnant women;

2 For more information on the International Health Regulations, please visit: <http://www.who.int/ihr/en/index.html>.

3 Immunization Newsletter, October 2009: Vol. XXXI, No. 5, available at: <http://www.paho.org/english/ad/fch/im/sne3105.pdf>

- To assess the impact, safety, and effectiveness of the vaccine, ESAVI classification should be completed.

### New vaccines: rotavirus and pneumococcal

The introduction of new rotavirus and conjugated pneumococcal vaccines is occurring rapidly in the Region of the Americas. Some points regarding the introduction of new vaccines merit considerations and recommendations:

#### Considerations:

- Knowledge about vaccine effectiveness, safety, and impact is currently being generated in the countries of the Americas;
- Sentinel surveillance is a cornerstone for effectiveness studies and to measure vaccination impact through other methodologies;

- Implementing or strengthening surveillance of diseases preventable by new vaccines is primarily aimed at assessing morbidity and mortality trends, as well as to monitor the prevalence of circulating strains and changes in the epidemiological profile of the disease;
- The universal introduction of new vaccines allows for the assessment of the potential impact of vaccination, provides reliable vaccination coverage, and ensures equality in access to vaccination, as children can receive their complete schedules anywhere in the country.

#### Recommendations:

- Countries that have already implemented new vaccine surveillance should improve the quality of the information, particularly for sentinel surveillance of pneumonia and bacterial meningitis by verifying and comparing epidemiological data against that obtained through the

laboratory network SIREVA;

- Countries should strengthen the systematic reporting of information to PAHO/WHO;
- The implementation of new vaccines should be evidence-based. The schedules are recommended for American countries by PAHO's Technical Advisory Group (TAG) and the World Health Organization's Strategic Advisory Group of Experts (SAGE).

### PAHO Revolving Fund

The PAHO Revolving Fund<sup>4</sup> for Vaccine Procurement is a purchasing mechanism that not only operates for the benefit of each country but also for the Region of the Americas as a whole, thanks to its principles of quality, accessibility, equity,

<sup>4</sup> For additional information on the Revolving Fund, please visit: [http://www.paho.org/english/hvp/hvi/revol\\_fund.htm](http://www.paho.org/english/hvp/hvi/revol_fund.htm).

### Meetings on the Collaboration between PAHO and the National Committees on Immunization Practices

#### Current Status of National Committees in Central America, July – El Salvador, El Salvador

##### Diversity in function and independence:

- Of the nine countries that participated in the meeting of National Committees, five have a functional committee;
- Independence from the Ministry of Health varies, at least two of the five currently operating committees are not independent of the Ministry of Health.

#### Current Status of National Committees in South America, October – Asunción, Paraguay

##### Diversity in function and independence:

- Of the ten countries that were in attendance, nine of them have an active committee that meets at least twice a year;
- Independence from the Ministry of Health varies, as some have representatives from professional societies and other governmental institutions or individuals as members.

### Proposals for the collaboration between the Committees and PAHO

- A proposal was made to continue with these committee member meetings within the framework of sub regional immunization meetings;
- Participation of National Committee representatives at PAHO's Technical Advisory Group (TAG) on vaccine preventable diseases meetings, was advised;
- Support from the members of National Committees to further improve the operational guide for committees was requested;
- It was proposed that the committee on documentation and verification of the elimination of measles work as a sub-committee of the National Committee on Immunization Practices;
- Seeking communication mechanisms between the Committees and PAHO was suggested:
  - To share documents and experiences regarding the character and practice of Committees that function successfully and to maintain members sufficiently well informed and updated in technical issues;
- PAHO/WHO should send the Committees public awareness documents and announcements regarding important issues, as well as newsletters on immunization, measles, rubella, influenza H1N1, WHO Position Papers on Vaccines, etc.
- PAHO/WHO should support the compilation of evidence, for instance help measure the costs-savings on the management of diseases that are preventable by vaccinations a country would have;
- Request for collaboration:
  - For the creation of Committees: support the country's initiative to form a committee and provide a technical basis for the functioning of this Committee;
  - To legalize the existence of, as well as the rules and regulations for committees;
  - Establish mechanisms for regional coordination of National Committees;
  - Develop legislation that guarantees funding and that encourages vaccine safety.

and Pan-Americanism. The Revolving Fund has been instrumental in the success of immunization programs in the Region by offering vaccines at low price, supporting the introduction of new vaccines, and ensuring the availability of vaccines and other immunization supplies.

#### Recommendations:

- PAHO should develop a communication strategy on the Revolving Fund directed towards new health authorities coming in after government changes;
- The Revolving Fund should standardize the evaluation forms for vaccine arrivals;
- Measures to re-capitalise the fund in less time should be implemented in order to ensure the

continued placement of purchase orders;

- PAHO should communicate to countries of any situations that arise preventing deliveries from providers to the Region;
- Vaccine demand forecasts should be critically reviewed by the national authorities and PAHO focal points to ensure data consistency in the estimated purchases from the program. Ensuring accurate demand forecasting is a critical input for suppliers to meet delivery commitments;
- The managers of the Revolving Fund should complete the development of an indicator dashboard to facilitate the daily monitoring of the situation of key logistic and financial

processes of the Fund in order to provide flexibility in its implementation;

- PAHO should maintain the principles of the Revolving Fund - unique price and the lowest price in the market – because of the benefits they bring to all countries of the Americas. The vaccine prices of the Revolving Fund are a worldwide benchmark for vaccine negotiations between providers and countries. ■

**Note:** For a complete copy of these reports, 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).

### Caribbean EPI Managers' meeting

The XXVII Sub-regional meeting of the Immunization Program Managers in the Caribbean was held in the Cayman Islands from 15 to 19 November 2010. Twenty-three (23) island states and territories in addition to French Guiana, Martinique, Canada, USA, as well as international agencies such as the U.S. Centers for Disease Control and Prevention (CDC) and the Canadian Public Health Agency (CPHA), participated in the meeting. The purposes of the meeting were:

- To share immunization experiences and lessons learned at the regional, sub-regional, and national levels in order to enrich collective understanding, build on the successes, refine strategies, and define solutions for deficits detected;
- To provide scientific, technical, and programmatic updates in order to ensure that immunization managers are positioned to answer relevant questions from Ministries and other stakeholders;
- To review current plans and outcomes and to develop new plans for the future, because planning and evaluation are important managerial elements for enhancing performance, mobilizing resources, and guaranteeing financial sustainability; and
- To discuss and decide on timelines for the completion of country reports for the documentation and verification for the elimination of measles, rubella and congenital rubella syndrome (CRS).

## Nicaragua introduces 13-valent pneumococcal conjugate vaccine (PCV-13)

On Sunday 12 December 2010, Nicaragua's Ministry of Health officially launched the introduction of the 13-valent pneumococcal conjugate vaccine (PCV-13) to reduce the burden of disease caused by pneumococcus. National authorities and representatives from the GAVI Alliance, PAHO, UNICEF, and other health entities in the country attended the ceremony.

Nicaragua is the first GAVI-eligible country in the world to introduce a pneumococcal conjugate vaccine with GAVI Alliance support.

During the ceremony, Dr. Guillermo González, presidential health advisor and GAVI board member, emphasized the achievements on immunization in Nicaragua, including the high coverage rates, the participation of the civil society, and the role of the popular health brigades in

providing vaccines to the difficult-to-reach populations. Ms. Helen Evans, from the GAVI Alliance, indicated that Nicaragua's high vaccination coverage levels were an important consideration in the Alliance's decision to provide PCV-13 support, and that the country provides a good example of how to win the battle against vaccine-preventable diseases. Other speakers highlighted the role of PAHO's Revolving Fund for vaccine procurement and the GAVI Alliance as partners of the Immunization Programs in Latin America, and how the introduction of PCV-13 represents an important milestone for Nicaragua's Expanded Program on Immunization (EPI). The country introduced MMR vaccine in 1998, Hib and hepatitis B vaccine in 1999, rotavirus in 2006, and seasonal influenza for risk groups in 2007.

Dr. Sonia Castro, Minister of Health, indicated that 277,031 children will benefit from the introduction of PCV-13. Vaccination will start in all the country's vaccination centers in January 2011. Dr. Castro acknowledged the support from PAHO throughout the history of the EPI in Nicaragua and recognized the contributions from several governments, the Bill and Melinda Gates Foundation, and other partners. The event ended with the symbolic vaccination of several children in two health centers.

In the Americas, the gap of time between new vaccine introduction in developed and developing countries is shortening; this has been the case with rotavirus vaccine and now with PCV. Several countries of the Americas have introduced PCV as part of their universal childhood immunization schedules. Nicaragua is the first of the six GAVI-eligible countries in the Region to do so with GAVI support. Guyana and Honduras will also commence PCV vaccination in January 2011. ■

# Vaccination Supplies Stock Management (VSSM)

PAHO has been a pioneer in introducing computer applications for vaccine stock management. CLM (Commodities, Logistics Management - developed by Management Science for Health), a DOS-based application, was the very first software tool introduced by PAHO in several countries during the latter part of the 1980's. CLM was the only software tool made specifically

for the Ministries of Health for use in managing inventories of commodities used in public health programs. It was designed to be used in any vaccine stores at any level.

With the advent of Windows, CLM became obsolete and could no longer be easily used. Vaccination Supplies Stock Management (VSSM), a new tool for stock management, was initially

developed in the WHO's Eastern Mediterranean Region (EMR) and was later augmented and adopted by WHO. New and costly vaccines introduced to the programs during the recent years justify investment on developing effective and easy to use tools for management of stock.

PAHO, in collaboration with the WHO HQ, initiated a pilot project to field test VSSM in Nicaragua in January 2010. VSSM was installed in the National Vaccine Store in Managua and a plan was

prepared to install VSSM in all of the 17 SILAIS (the equivalent of sanitary regions). Thirty three Ministry of Health staff were in attendance, as well as two staff from Bolivia.

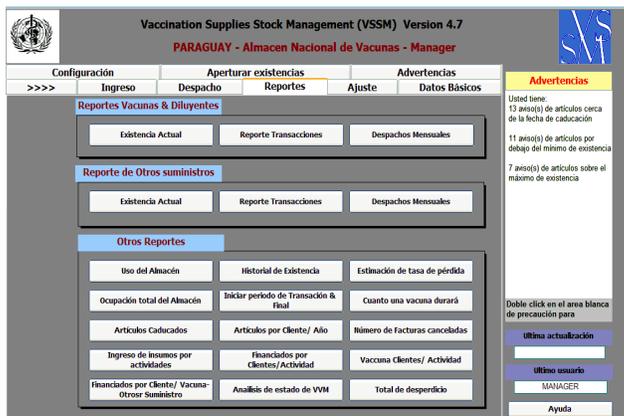
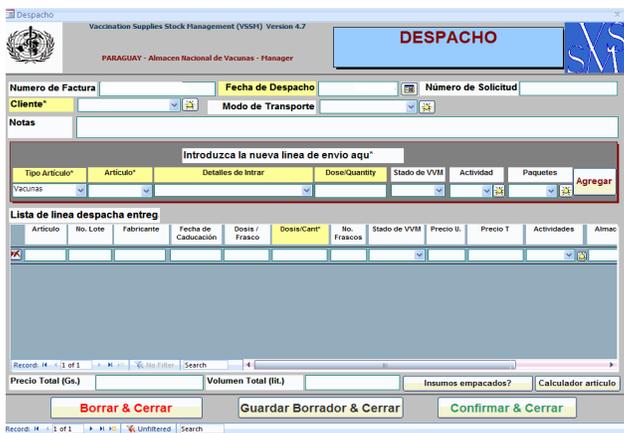
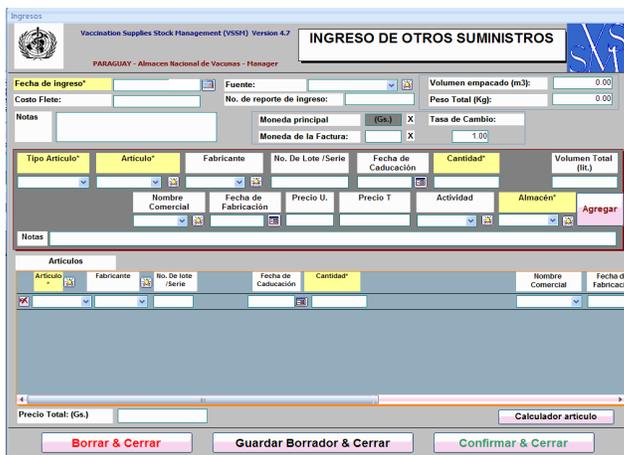
In March 2010, a VSSM workshop was conducted in La Paz, Bolivia. The Ministry of Health invited 35 participants, also in attendance during the training course in La Paz were two staff from the Ministry of Health of Paraguay.

Paraguay held a workshop to train users in 5 of its regions. VSSM was installed at central level and in 5 regional stores.

As a result of the two workshops PAHO and country participants identified enhancements to the development of VSSM. New features and functions were added and reports were changed to suit the store staff and program managers. The Users Guide and Software for VSSM version 4.2 has been translated into Spanish by PAHO.

In November of 2010, the Ministry of Health in Honduras also conducted a Workshop to pilot test the VSSM. Two participants from de Ecuador were invited to attend.

PAHO will develop a check list for monitoring and documenting the experience, utility of VSSM and the follow-up of the progress countries are making in using VSSM. ■



VSSM is an inventory management tool whose overarching goal is to improve management of the supply chain in order that vaccines and diluents and other related commodities neither suffer from being over stocked and avoid that any item is out of stock. It provides 40 different reports to help program managers to plan ahead and have up-to-date information about all stock levels for all items in the stores. It also provides the managers with a remaining net capacity for different storage areas.

VSSM is a computer tool to assist vaccination program managers and storekeepers to organize and manage the stock of vaccines and other related supplies. VSSM's focus is on vaccines and diluents; however, it also caters for all other supplies.

VSSM uses open source software based on Microsoft Access and all codes are provided to users. Anyone familiar with MS Access can modify VSSM, add new fields, and manipulate reports to suit their specific situation.

VSSM is a multilingual tool and supports switching from English to French, Arabic, Russian and Spanish without affecting data. It has already been translated into Mongolian and Persian (Farsi) languages.

VSSM is a fully customizable tool and all coding is left to users, as they can select the language of their choice for coding. VSSM structure is mainly based on WHO/ UNICEF training on vaccine management in developing countries and with consideration for common field practices.<sup>1</sup>

1. The WHO Training Manual has not been made publicly accessible as of yet, but can be obtained upon request.

## 2nd Annual Latin American Open Source Health Informatics (IMeCA) Meeting: Opportunities for Immunization Programs in the Americas

The 2nd Latin American Open Source Health Informatics Meeting<sup>1</sup> took place in Granada, Nicaragua, from 29 November to 3 December 2010. Representatives from 17 countries participated. The objectives of the meeting were to 1) share experiences using open source mobile technologies in health, 2) report and validate the preliminary results from a situational analysis of eHealth and mHealth in Latin America, and 3) define the priorities of the IMeCA community and strengthen collaboration in the Region. During the first two days, a landscape analysis, eHealth and mHealth trends in limited-resource settings, and several demos of mHealth and ex-

<sup>1</sup> For more information on the 2nd Latin American Open Source Health Informatics meeting, please visit: [www.informaticamedica-lac.org](http://www.informaticamedica-lac.org).

periences were presented. During the next three days, two parallel workshops took place: one on the use of eHealth tools for developers and implementers, and another on eHealth proposal writing. A poster session was also conducted. An experience using mobile phones and the Internet to respond to emergencies, several related to maternal and perinatal health, in rural communities in Guatemala – implemented by Tula-Salud, a Guatemalan non-governmental organization with Canadian funding – was selected as the most interesting experience.

Representatives from the Immunization Program of the Pan American Health Organization participated in the IMeCA meeting to become familiar with experiences in open source eHealth and mHealth that can be used for im-

munization. The advent of new information and communication technologies (ICTs) offers enormous opportunities to improve the efficiency of the immunization programs in the Americas and the developments in open source can help make these tools more affordable. Mobile technology, record management systems, technology for identification, barcodes, and multimedia, provide potentially useful tools to improve immunization and surveillance data collection, quality, and timeliness of reporting; individualized follow-up of schedules; monitoring of events supposedly attributable to vaccines and immunization (ESAVI); continuing education and training; social mobilization, as well as opportunities to improve and facilitate a more efficient management of the vaccines and other supplies, and the cold chain. Countries of the Americas are in a position to start evaluating the available options, getting to know and appraise local experiences using eHealth and mHealth in their country, and implementing projects of ICT in immunization, of varied scope. ■

We invite the readers of the Immunization Newsletter to share their experiences using ICTs.

The *Immunization Newsletter* is published every two months, in English, Spanish, and French by the Comprehensive Family Immunization Project 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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