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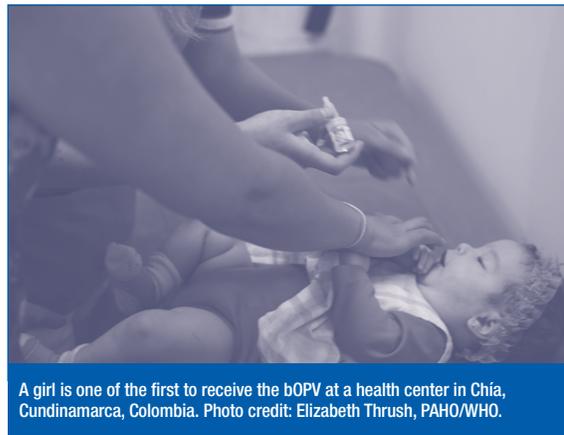
Preparation and Development of the Polio Vaccine Switch in Colombia

In February 2015, all of the departments and districts in Colombia were informed of existing international commitments to global polio eradication and the polio endgame 2013-2018. This marked the beginning of preparations for the switch from the trivalent oral polio vaccine (tOPV) to the bivalent oral polio vaccine (bOPV) in the country, which was carried out successfully on 1 May 2016.

To aid in this process, the *Polio Eradication and Endgame Strategic Plan 2013-2018, Colombia 2015* was developed in July 2015 and sent to the country's departments, districts and health centers (referred to as *Instituciones Prestadoras de Servicios de Salud [IPS]* in Colombia) in August 2015. The document stated that every health center or vaccination service point was required to have citizen oversight of the process. The guidelines in the document also included different related annexes and forms, which had to be signed by municipal representatives, community leaders, police inspectors, sheriffs, health inspectors and indigenous governors, among others.

In October 2015, an inventory was taken of the tOPV dose stock at all vaccinating health centers, including extramural, private and newborn vaccination service points. Additionally, information on how hazardous waste is destroyed at each vaccination service point was collected. By collecting this data, weaknesses were identified in the way that vaccination service points, especially those that are rural and scattered, managed and stored waste. This information also helped identify the need to authorize rural or scattered territories to destroy tOPV through deactivation, allowing for timely tOPV destruction to fulfill the Ministry's authorized timetable.

Two national meetings of Colombia's Expanded Program on Immunization (EPI) were held in August and November 2015, where the national document was distributed, preparing the EPI managers of departments, districts and capital cities for the switch. Due to a change of authorities in the administrations of the departmental, district and municipal



A girl is one of the first to receive the bOPV at a health center in Chía, Cundinamarca, Colombia. Photo credit: Elizabeth Thrush, PAHO/WHO.

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XXIV Ad Hoc Meeting of PAHO's Technical Advisory Group on Vaccine-preventable Diseases

The XXIV Meeting of the Technical Advisory Group (TAG) on Vaccine-preventable Diseases of the Pan American Health Organization (PAHO) was held as an emergency virtual ad hoc meeting on 13 May 2016 in Washington, DC. The objectives of the meeting were to ask TAG members for recommendations on how to move forward with the potential global shortage of the inactivated polio vaccine (IPV), use of the dengue vaccine in routine immunization programs and the feasibility of eliminating perinatal Hepatitis B in the Region of the Americas¹.

Dr. Cuauhtemoc Ruiz Matus, Unit Chief of PAHO's Comprehensive Family Immunization Unit, opened the meeting by welcoming the TAG members and attending staff; he then turned the meeting over to TAG chair Dr. Peter Figueroa. Dr. Figueroa expressed that the global IPV shortage was the main reason behind calling the meeting, as it is an urgent matter that should be effectively addressed in the Region. In addition to other meeting objectives stated above, a brief update on the current global and regional status of yellow fever was given at the meeting, as well as an update on the Terms of Reference for TAG members.

Although virtual technical meetings have been successfully conducted in the past, this was the first time that a virtual TAG meeting was held. TAG members acknowledged the versatility of this type of TAG session. Virtual ad hoc TAG meetings will be conducted in the future, especially if another urgent matter for discussion becomes known.

¹ The topic of IPV shortage was excerpted from the 2016 ad hoc TAG Meeting's Final Report and reprinted in this issue of the Immunization Newsletter on page 3. The complete report is accessible online at www.paho.org/immunization/TAG-Reports.

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territories, all departments and districts were reformed of the commitments of the global polio eradication plan in February 2016.

On 1 April 2016, a guide was developed for health centers in rural scattered areas from seven departments, where tOPV deactivation was authorized to be done through the use of a sterilizing pot, followed by the ultimate disposal of the non-hazardous waste in areas authorized for this by the existing norm. This was done to ensure fulfillment of the schedule established by the Ministry of Health, considering that there would not have been enough time for the tOPV to reach the capital city for destruction between 1 and 6 May.

Technical assistance visits were conducted from February to April 2016 in the departments and districts, where checklists were applied to confirm fulfillment of the requested preparatory activities. An additional part of preparing for the switch included interaction with the National Institute for Drug and Food Surveillance (INVIMA) as a National Regulatory Agency (NRA).

The last video conference with all of the departments and districts was conducted on 29 April 2016 in order to provide final clarifications and suggestions for the successful execution of switch activities on 30 April (tOPV withdrawal from the cold chain of 2,910 health centers) and 1 May (bOPV availability confirmed in 100% of health centers).

Each department and district carried out the process of collecting and destroying tOPV to comply with the timetables established from the national level and thus guaranteeing the collection and delivery of the vaccine to hazardous waste management companies. At the country level, a total of 118 hospital waste management companies participated, who issued the respective certifications of destruction for 444,903 doses of tOPV.

Management of tOPV Concentration and Destruction in Colombia

The process of verifying fulfillment of the switch started on 1 May across the national territory; it was spearheaded by the Ministry of Health and Social Protection (MSPS) and supported by INVIMA as the NRA, with additional support from

both the Pan American Health Organization (PAHO) and the International Organization for Migration (IOM).

Supervision of the switch took place in all of the departments and districts. In total, 2,910 health centers and 160 collection centers and cold rooms were verified. A majority of the departments and districts were visited between the first and second weeks of May, verifying that the whole process had been adequately supported. tOPV was absent from every level of the national cold chain and both bOPV and the inactivated polio vaccine (IPV) were available in 100% of the vaccination service points.

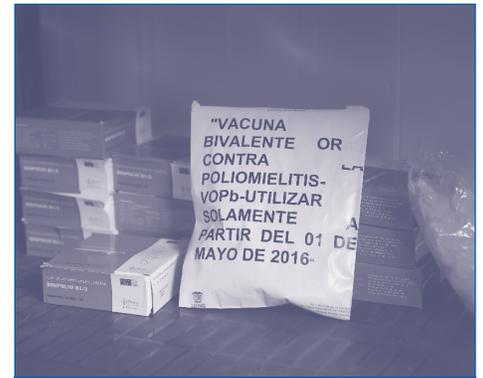
The great mobilization and national participation in the process was reflected in the work of 12,825 people from health areas and other sectors, a fundamental part of successfully executing the switch in Colombia on 1 May 2016.

The process of the switch in Colombia implied a total investment of COL\$3,226,493,203.00 (US\$1,116,173.06), assumed by the municipalities, departments, districts and by the national level. The cost of the destroyed vaccine is not included in this total.

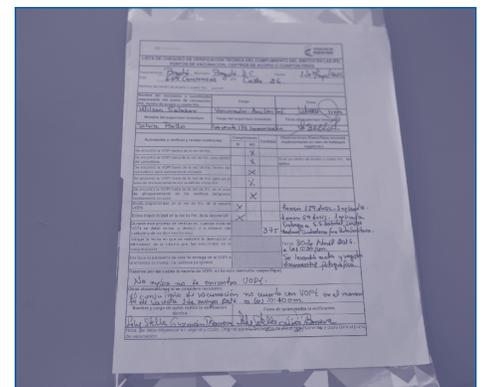
Colombia's switch from tOPV to bOPV was part of a two-week globally coordinated switch from 17 April-1 May 2016. This event coincided with the Region's Vaccination Week in the Americas (VWA) initiative, which took place from 23 April-30 April 2016.

Principal Lessons Learned from Colombia's Experience with the Switch:

- The work coordinated with all of the system's actors at the departmental, district and municipal levels contributed to achieving the objectives of the switch, and counted on 100% of the information required from all of the territorial entities.
- The unified and timely trainings on the switch throughout the country facilitated the process.
- The established timetable from the Ministry facilitated synchronized work throughout the country.
- The process of the switch helped identify areas for improvement in the comprehensive management of hazardous hospital waste.



All bOPV vials were labeled so that they would only be used starting 1 May 2016. Photo credit: Harold Ruiz, PAHO/WHO.



After the switch, every vaccinating health center had to complete and sign a checklist verifying the switch, signed both by the supervisor of the health center and the person monitoring the switch. Photo credit: Elizabeth Thrush, PAHO/WHO.



tOPV was collected, labeled and sent for safe destruction on 30 April 2016. Photo credit: Elizabeth Thrush, PAHO/WHO.

- The link between the community and other sectors fostered community empowerment as witnesses of the process, which was key for a successful switch.
- The Ministry's consistent monitoring facilitated the timely control of information and fulfillment of key activities in the process. ■

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The following article was adapted from the Final Report of the XXIV Meeting of PAHO's Technical Advisory Group (TAG) on Vaccine-preventable Diseases

Global IPV Supply Situation: How to Manage the Limited IPV Supply and Deal with Potential Stockouts

Background

In May 2012, the World Health Assembly declared the completion of polio eradication as a “programmatically emergency for global public health.” On 25 January 2013, the Executive Board of the World Health Organization (WHO) approved the targets, goals and timelines of the Polio Eradication and Endgame Strategic Plan 2013-2018, which seeks to simultaneously eradicate wild poliovirus and eliminate vaccine-derived poliovirus (VDPV). The main objectives of this Strategic Plan are to detect and interrupt poliovirus transmission; to strengthen immunization programs and withdraw the oral poliovirus vaccine, starting with the withdrawal of the type 2 component by switching from the trivalent (serotypes 1, 2 and 3) to the bivalent (serotypes 1 and 3) vaccine; to contain poliovirus and certify the interruption of transmission; and to plan how to utilize the legacy of the fight against poliomyelitis.

For the globally synchronized switch from the trivalent oral polio vaccine (tOPV) to the bivalent oral polio vaccine (bOPV), WHO recommended that all countries using only the oral poliovirus vaccine (OPV) introduce at least one dose of the inactivated polio vaccine (IPV) into their routine immunization programs to ensure that new cohorts of newborns have some protection against the type 2 poliovirus, either wild or vaccine-derived.

In April 2014, the TAG recommended that the countries should consider a sequential schedule. Ideally, countries should consider two IPV doses followed by two OPV doses. However, if a country is considering only one IPV dose, this should be administered with the first dose of the diphtheria, tetanus, pertussis-containing vaccine and followed by three OPV doses.

Due to the very limited supply of IPV, and in order to ensure that all countries in the Region would have access to IPV before the switch, PAHO made an agreement with the countries that participate in the Revolving Fund (RF) to introduce only one IPV dose. This introduction would be preferable in the second semester of 2015, in a schedule with one dose of IPV followed by 3 or 4 doses of OPV, until the IPV supply is sufficient to meet the real demand of all countries. Nonetheless, global IPV supply continues to be insufficient and untimely and

IPV availability is expected to remain constrained until the end of 2017.

In October 2015, the Strategic Advisory Group of Experts on Immunization of the World Health Organization (SAGE) reaffirmed that withdrawal of the type 2 component of the oral polio vaccine (OPV2) should proceed in April 2016, even in countries where IPV introduction will be delayed, due to the fact that the public health risks associated with the continued use of the type 2 component in the tOPV far outweigh the risk of new vaccine-derived poliovirus type 2 (VDPV2) emergence after use of OPV2 is stopped. The bOPV supply is sufficient to meet the global demand.

Risk of VDPV Emergence

Based on the considered mathematical models, at least 1-2 circulating vaccine-derived poliovirus (cVDPV) type 2 outbreak(s) are expected to occur within the first 12 months following the switch, with Pakistan representing a high-risk area. The risk is greatest in the first year and declines thereafter; however, the consequences are expected to be greater the longer the interval between the switch and VDPV emergence, particularly in areas where IPV coverage is not equal to or greater than 95%.

It is important to highlight that IPV has a limited role in preventing the emergence of VDPV2. The primary value of IPV is in minimizing the occurrence of paralytic disease from any wild poliovirus type 2 (WPV2) or VDPV2 after the switch. However, if a VDPV type 2 outbreak emerges post-switch, it would be rapidly controlled with the monovalent oral poliovirus vaccine type 2 (mOPV2), as the population would have already received at least one IPV dose and therefore would already have some degree of immunity.

Global IPV Supply Situation

The level of commitment from countries to meet the IPV introduction timeline was exceptional. Out of 126 globally planned introductions, 104 countries have introduced IPV as of June 2016 and two more will introduce in August 2016.² In the Americas, all of the 32 countries that had previously used only OPV have already introduced IPV in their routine immunization schedule. Unfortunately, the required rapid scale-up of IPV production has encountered multiple challenges, leading to a global shortage. Current constraints mean that approximately

20 countries from other WHO regions (AFRO, EMRO, EURO and WPRO) that have not already received their first IPV shipment through the United Nations Children's Fund (UNICEF) and are considered at low risk for cVDPV type 2 outbreaks, will not be able to introduce IPV in 2016. These countries are expected to receive their first IPV shipments in the fourth quarter of 2017. In addition, shipments to approximately 25 countries, from AFRO, EMRO, SEARO and WPRO that have already introduced IPV and are considered at low risk for type 2 outbreaks, will not receive additional supply before the fourth quarter of 2017.

Update on the IPV Supply Situation in the Region of the Americas

Currently, the RF only procures IPV through one manufacturer, Bilthoven Biologicals from The Netherlands. This supplier has reduced the quantity offered to the RF due to production issues in 2016. Additionally, scheduled deliveries have been delayed. The first deliveries for 2016 are only expected from September 2016 onwards, and there are outstanding orders from 2015, totaling 1.4 million doses, which will hopefully be delivered through August 2016.

The only other possible IPV manufacturer has not accepted the conditions set by the RF and has progressively been reducing the supply of this vaccine to UNICEF. The RF has accepted a small availability of doses in pre-filled syringes for a couple of countries to diminish the supply gap. No additional supply sources exist globally.

Supply Perspective

The RF has been working closely with the manufacturer to stay up-to-date on any potential further setbacks and has been adapting the IPV allocation and delivery plans, prioritizing countries that are in greater need to avoid stockouts. Despite the efforts, one country is facing a stockout and five additional countries could face the same situation if manufacturer performance continues to deteriorate. Considering this production performance, the Region must be prepared to face country stockouts, varying from a few weeks to several months. This risk will last through the end of 2017, until additional production capacity is available.

Fractional Dose Schedules

There is a growing body of scientific evidence on the safety and immunogenicity of intradermal (ID)

² Number of countries has been updated to reflect progress since the TAG Meeting in May 2016.

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fractional IPV (fIPV) dose administration, which delivers 0.1ml or 1/5 of a full intramuscular (IM) dose. Studies have been conducted for ID fIPV dose administration as a primary series in routine immunization schedules, as well as for boosting.

In March 2016, the WHO updated the polio position paper, which includes a recommendation to face the global IPV shortage, stating that: “As an alternative to the intramuscular injection of a full dose of IPV, countries may consider using fractional doses (1/5 of the full IPV dose) via the

intradermal route, but the programmatic cost and logistic implications of this option should be considered.” The SAGE working group in March 2016 confirmed that the proposed schedule of two fIPV doses can induce equal or better immunity than the current one full-dose schedule.

To reiterate, the SAGE working group confirmed that the proposed schedule of two ID fIPV doses can induce equal or better immunity than the current intramuscular full dose schedule.

While the use of mOPV is the mainstay of an outbreak response, there are some special recommendations for ID fIPV use during outbreaks. In January 2016, the SAGE working group, recommended that ID fIPV should be used for outbreak response. They reaffirmed this recommendation in March 2016, adding that fractional IPV provides good seroconversion among naïve infants, prevents paralysis and boosts humoral immunity in previously OPV-vaccinated children.

TAG Recommendations

The TAG reiterates its concern about the insufficient global IPV supply and recognizes that the RF and PAHO's Comprehensive Family Immunization Unit are closely monitoring the situation and adjusting IPV delivery schedules in order to avoid stockouts in the Region.

Due to the overall global IPV deficit that will last through 2017, the TAG extends the following recommendations to the countries of the Region:

1. Reduce IPV wastage

- Ensure strict adherence to the vaccination schedule, only using IPV with children that have turned two months of age after the official IPV introduction date in the country.
- Fully implement the WHO open vial policy, which permits the use of open vials of IPV for up to 28 days, provided that the defined criteria are met as outlined in the “WHO policy on the use of opened multi-dose vaccine vials,” available online at <http://bit.ly/2b8Uztw>.
- To reduce wastage of the vaccine, avoid the use of IPV in extramural activities whenever possible, prioritizing vaccination strategies that use fixed or mobile vaccination posts.
- Closely monitor IPV supply in the country, to ensure that all services are supplied and all possible service points that could have excessive vaccine wastage are identified, to provide appropriate recommendations.

2. Prepare to respond to possible IPV shortages

- All health workers should be both informed about a possible IPV shortage and prepared to respond to this eventuality.
- In the absence of IPV for administration as the first dose of vaccination against polio, children should receive bOPV as the first dose in the schedule. In these cases, IPV should be applied at the first contact as

the second, third or booster dose in the schedule, always respecting the minimum interval of four weeks between doses of polio vaccines.

- Due to the uniqueness of this recommendation, it is necessary to inform all vaccinators about the importance of clearly registering which vaccine was used, in both the national registry and on the child's vaccination card, so that it will be clear if the child has already received an IPV dose or if this dose is still pending for the next visit.

3. Prepare to respond to polio outbreaks

- All countries should review their polio outbreak response plans, considering the guidelines presented in the documents published by the Global Polio Eradication Initiative on 20 April 2016:
 - Standard Operating Procedures for responding to poliovirus events and outbreaks (Part 1: General Standard Operating Procedures; Part 2: Specific protocol for type 2 poliovirus, available at <http://bit.ly/2dA1HR4>).
- Countries should ensure that they can receive mOPV2 in a very short time from the global stock pile for outbreak response, which will be sent through UNICEF.
- IPV will not be needed to respond to all type 2 polio outbreaks. However, if it is assessed that IPV use is necessary, the WHO recommends that countries use ID fIPV doses to make sure there is sufficient supply to serve all countries in need.

- Countries should evaluate their capacity in terms of skilled human resources to implement a vaccination campaign with ID fIPV doses. Furthermore, countries should ensure that they can use the IPV vaccine this way, as recommended by the WHO for outbreak response.

4. Evaluate the capacity for ID fIPV use in routine program, if needed

- At this time, TAG does not recommend that countries begin an ID fIPV schedule, but this option could be considered if the supply situation continues to worsen.
- Another TAG meeting should be convened if there is a change in the current IPV supply situation that justifies further assessment and recommendations.
- All countries should begin to evaluate the capacity of their programs to implement an ID fIPV schedule. This includes evaluating the availability of trained personnel to apply the vaccine intradermally, availability of Bacillus Calmette-Guérin (BCG) syringes, programmatic cost and feasibility. Also, countries should evaluate if any changes need to be made to the national registry system.
- The ID fIPV recommendation is based on scientific evidence, but is not included in the vaccine inserts; therefore, countries should ensure that they can use ID fIPV off-label.

5. Strengthen surveillance

- The TAG reiterates that due to the risk of the emergence of cVDPV type 2 in the post-switch period, all countries must maintain sensitive surveillance systems in order to rapidly detect and interrupt any type 2 circulating poliovirus.
- Countries should strive to meet the following quality acute flaccid paralysis (AFP) surveillance indicators:
 - 1 AFP case per 100,000 children less than 15 years old
 - > 80% cases with adequate samples
 - > 80% cases investigated within 48 hours or less ■

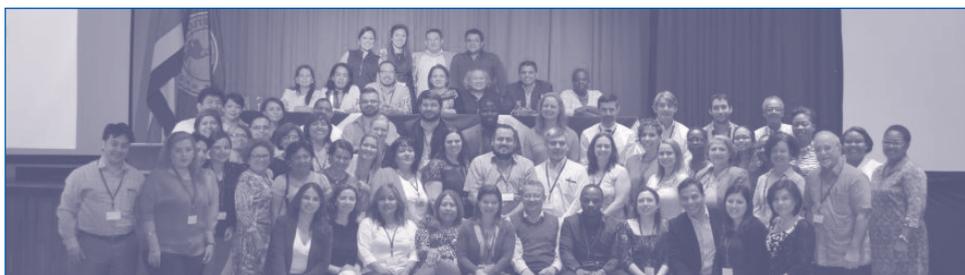
Meetings and Workshops in Costa Rica

Regional Meeting on Electronic Immunization Registries

The Region of the Americas's third meeting to share lessons learned in planning, designing and implementing electronic immunization registries (EIRs) took place in San José, Costa Rica on 4-6 April 2016. Meeting participants included representatives from 20 countries in Latin America and the Caribbean and three representatives from Gambia, Tanzania and Zambia. Partners from the United States Centers for Disease Control and Prevention (CDC), the European Centre for Disease Prevention and Control (ECDC), the Bill and Melinda Gates Foundation, PATH, the World Health Organization (WHO) and advisory group members for the Improving Data Quality for Immunization (IDQi) Project also participated. The meeting was convened by the Pan American Health Organization (PAHO) as part of the activities to document and share the lessons learned and country experiences developing and implementing EIR systems.

The meeting's objective was to monitor the progress of implementing EIR information systems regionally and globally, share the lessons learned by the countries and organizations that are promoting and supporting these types of initiatives and identify key aspects to incorporate into guidelines for planning, developing and implementing EIRs.

Authorities from the Ministry of Health and the PAHO/WHO office in Costa Rica welcomed meeting participants, pointing out the importance of having quality and timely data for decision-making at all management levels of the immunization program, as EIR systems are an important tool to improve the performance of the Expanded Program on Immunizations (EPI) in the Region of the Americas. PAHO presented the progress that the countries of the Region have made as far as implementing EIR systems and how these respond to the Regional Immunization



Participants at the regional meeting to share lessons learned in developing and implementing EIRs. San Jose, Costa Rica, April 2016. Photo credit: PAHO.

Action Plan (RIAP) and the Global Vaccine Action Plan (GVAP). EIR development within the context of eHealth and how ethics relates to using EIR systems in the countries were also among the topics discussed.

Following the presentations, countries had group discussions on the following subjects:

- The relationship between health information systems and EIRs;
- Characteristics of an ideal EIR for the Region;
- Barriers that might affect the implementation of health information systems;
- Process of planning of an EIR system;
- Resources and capacities necessary for EIR implementation;
- Process of transitioning from a paper-based system to an electronic system.
- Definition of functionalities of the EIR and basic EIR reports;
- Definition of vaccination strategies through information from an EIR;
- Types of development;
- Monitoring and evaluation of EIR data quality;
- Future challenges of EIR systems;
- Use of mobile technologies related to EIRs.

Brazil, Chile, Colombia, Costa Rica, Honduras and the United States started the topic discussions by

presenting on their country experiences. At the end of each session, each group was invited to present their conclusions, which were enriched by those from other groups.

The importance of having an EIR system as a fundamental tool for immunization program management at all levels of responsibility and for the monitoring and follow-up of those that benefit from vaccination services was pointed out as a shared vision among the countries of the Region and from other regions.

Participants agreed that EIRs should respond to the information needs of all those responsible for the immunization program, especially the vaccinator, who should be able to access a user-friendly system for his/her work. Aspects that facilitate EIR development, implementation, monitoring and evaluation in the countries were also identified in the workshop, including:

- The importance of counting on a national eHealth policy;
- The establishment of governance with authorities;
- The establishment of procedures for monitoring and evaluating the data quality of these systems;
- The guarantee of timely maintenance and sustainability. ■

Regional Sentinel Surveillance Workshop on Bacterial Pneumonia, Bacterial Meningitis and Rotavirus

Sixty participants from Argentina, Bolivia, Colombia, Ecuador, Honduras, Nicaragua, Paraguay, Peru and Venezuela, including representatives from the ministries of health, epidemiologists and laboratory workers from 13 sentinel hospitals, the national reference laboratories and staff from the Pan American Health Organization/World Health Organization (PAHO/WHO) attended a regional sentinel surveillance workshop on bacterial pneumonia, bacterial meningitis and rotavirus (BPM-RV) in San Jose, Costa Rica from 4 to 6 April 2016.

The main objectives of this workshop included

discussing the progress and challenges of regional sentinel hospital BPM-RV surveillance in Latin America and the Caribbean; consolidating case-based sentinel surveillance data for 2015 and 2016; performing quality control evaluations on the data and analyzing sentinel surveillance data using specific tools.

Every year, PAHO coordinates a meeting or workshop inviting all of the stakeholders involved in activities related to new vaccine surveillance. The goals are to improve the overall standardized epidemiological data for new vaccines in the Region

of the Americas and to monitor both antimicrobial susceptibility patterns and vaccine impact. This year, the sentinel surveillance hospitals that are part of the Global Sentinel Surveillance Network were invited to this workshop. In order to be a part of the network, hospitals must comply with basic worldwide approved indicators and requirements.

The sentinel surveillance workshop in 2016 was inaugurated by the Costa Rican Minister of Health, Dr. Fernando Llorca Castro, PAHO/WHO's representative in Costa Rica, Dr. Lilian Reneau-Vernon and the Unit Chief of PAHO's Comprehensive Family

SENTINEL SURVEILLANCE continued from page 5

Immunization Unit, Dr. Cuauhtemoc Ruiz Matus. A series of presentations took place after the inaugural remarks, consisting of updating participants on the Regional Sentinel Surveillance Network; analyzing the collected sentinel surveillance data and its challenges; assessing pneumococcal and rotavirus vaccination impact in the Region and providing an update on the new web-based systems for new vaccines.

Throughout the workshop, laboratory workers participated in parallel training activities that involved obtaining blood culture samples by polymerase chain reaction for *Streptococcus pneumoniae*. The rest of the workshop focused on teaching participants how to calculate monitoring indicators with Excel using the hospitals' most current data, with a special emphasis on interpreting the results of the indicators. Additionally, the 2015 results from each

hospital were analyzed in terms of trends, gender, radiographic findings, laboratory results, final case classification and location (place of origin and sentinel site).

At the end of the third and last day of the workshop, all hospitals (epidemiology and laboratory staff), along with staff from the ministries of health, were expected to prepare a presentation on the results of their analysis, as well as share challenges and future solutions for said challenges. One hospital was chosen to present its findings to the group.

The workshop ended with a mutual acknowledgment of the following key conclusions and agreements:

- All cases that meet the suspected case definition of bacterial pneumonia/meningitis or rotavirus

should be captured by the global sentinel surveillance system and should be recorded as case-based information.

- Case-based and aggregate data must be submitted to both the ministries of health and PAHO in a timely manner.
- The web-based system is now available for countries to use.
- It is important to review the quality of the recorded data. This is an ongoing process that must begin with completing the epidemiological investigation form, which must be done collectively at the local, national and regional levels.
- External quality control activities for laboratories should continue. ■

PAHO's ProVac Initiative Launches New Tools in Regional Training Workshop

The Pan American Health Organization's (PAHO) ProVac Initiative organized a two-and-a-half day capacity-building workshop in San Jose, Costa Rica from 6 to 8 April 2016. The workshop's main objective was to provide national public health experts with training on tools and methods to estimate the impact, costs and cost-effectiveness of vaccines in order to guide decision-makers in developing evidence-based immunization policies. A total of 71 participants from 19 PAHO countries participated in the workshop, as well as representatives from various partner organizations.

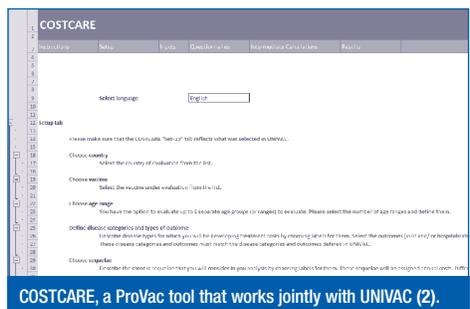
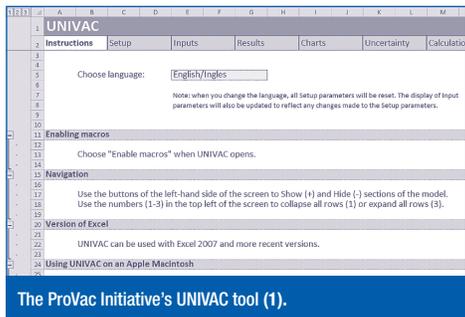
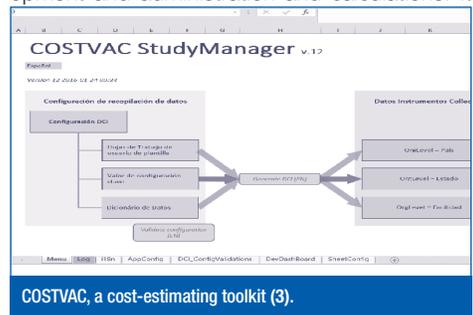
Much like in previous ProVac workshops, this workshop had a specific vaccine focus, — meningococcal vaccines; therefore, case examples for meningococcal vaccination were featured. However, all of the ProVac tools presented during the workshop are fully generalizable to any vaccine. The main tool launched during the workshop was the UNIVAC Model (1). UNIVAC is a single universal vaccine impact and cost-effectiveness decision support model with a standardized, accessible Excel-based interface and a familiar set of input steps and

outputs. Input estimates of age-specific disease burden, age/dose specific vaccine coverage and effectiveness allow for a simple evaluation of direct vaccination impact on health outcomes. It currently includes options to evaluate the impact and cost-effectiveness of vaccines that prevent *Haemophilus influenzae* type B, pneumococcal disease, rotavirus, human papillomavirus and meningococcal disease. Future development work will prioritize evaluation of other new vaccines available and those in the pipeline, including the dengue vaccine.

COSTCARE, a companion tool to UNIVAC, is an Excel-based toolkit that provides structured guidance on how to generate average disease treatment costs borne by households, health care systems and governments (2). The COSTCARE toolkit currently focuses on helping

per hospital admission, by disease syndrome and age group.

Finally, COSTVAC is an Excel-based toolkit that provides structured guidance on how to estimate the cost of routine immunization from a sample of health facilities and administrative levels of the health system (3). This toolkit provides guidance on sampling, survey instrument development and administration and calculations. It



countries improve the methods and reporting around the estimation of vaccine-preventable disease costs, with a focus on acute disease. It provides country teams with an approach to survey resource use and their costs and documents all assumptions for estimating average treatment costs per outpatient visit and

was developed to help countries more precisely document the shared resource use between the immunization program and other health service provision. Users can define the perspective and scope of the analysis.

All of these new or updated ProVac Tools will be accessible online through the ProVac Toolkit (www.provac-toolkit.com) by the end of 2016. (4). This toolkit was designed to house a comprehensive collection of the body of work developed by or thanks to the ProVac Initiative over the last decade. It contains information regarding the ProVac Initiative, from its inception under the leadership of Dr. Jon Andrus, to the

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present. It also contains a repository of guidance and methodological documents, as well as peer-reviewed publications of studies conducted with support from the ProVac Initiative.

Furthermore, the toolkit contains a large data repository of recommended default data to populate a UNIVAC-based analysis. It also provides a way to access the tools themselves through a registration and user agreement process. This toolkit is a direct response to a substantial global demand for ProVac tools and technical support. It is important to clarify that this toolkit does not replace the existing method of providing direct technical support to PAHO Member States. It is, however, intended to resolve many of the issues encountered by countless potential users who wish to access ProVac tools and methods, but are not directly linked to PAHO Member State ministries of health and are therefore not eligible to receive

direct technical support from the PAHO ProVac team.

Also, while ProVac tools and methods documents can be accessed directly through the toolkit, receiving in-person training and direct support for conducting a country-led analysis still requires an official request to PAHO's Comprehensive Family Immunization Unit. For countries and/or users outside of the PAHO Region, a mechanism of direct support is being established through the ProVac Global Initiative led by various PAHO ProVac partner organizations. For additional information on the Toolkit or the ProVac Initiative, please visit www.paho.org/provac. ■

Documenting the Progress Made and Remaining Gaps in Immunization Decision-Making



Participants at the ProVac Regional Training Workshop in San Jose, Costa Rica. Photo credit: PAHO.

During the April 2016 ProVac Regional Training Workshop, participants completed a pre- and post-workshop survey assessment of their knowledge, awareness and routine practice regarding the use of economic evidence in decision-making for their national immunization programs. The surveys specifically aimed to assess the participants' level of knowledge regarding economic evaluations in general and cost-effectiveness analyses (CEA) in particular; assess their national priorities in terms of upcoming decisions regarding immunization policy; and gather feedback on the ProVac tools and demand for their use. Participants also provided feedback on their overall satisfaction with the quality of the workshop training.

Of the 49 responses to the pre-test, the majority of respondents reported at least six years of experience in the field of immunization. However, almost half (47%) reported having less than

one year of experience with health economics. Approximately 77% of respondents reported they were from a country with an "active" National Technical Advisory Group (NITAG), and over 80% reported their country had a robust or minimally robust use of evidence for immunization policy-making (Figure 1). Furthermore, 69% of respondents reported that their country had commissioned a CEA to inform vaccine policy (Figure 2). These results demonstrate that while the use of economic evidence has become increasingly important for vaccine policy-making in the Region of the Americas, significant work remains. High turnover in ministries of health necessitates continuous capacity-building and strengthening. While the ProVac Initiative has undoubtedly contributed to the strengthening of the regional capacities for economic analysis and evidence-based policy-making on new vaccine introductions, the job isn't finished.

Figure 1. Use of Evidence

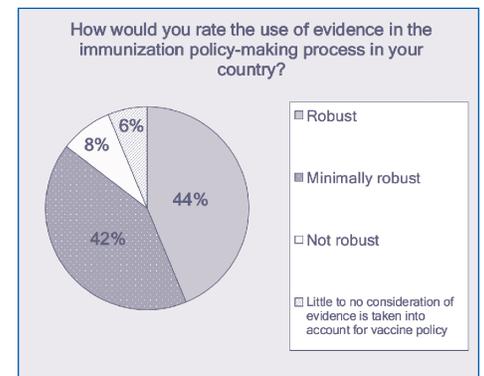
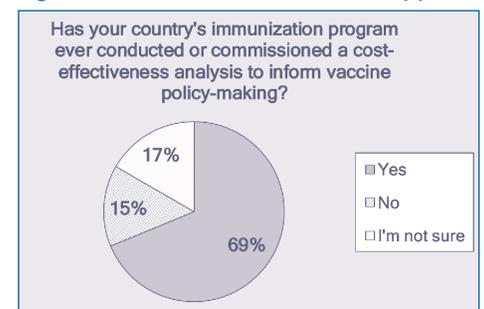


Figure 2. Conducted CEA of Vaccine(s)



Of the 30 responses to the post-test, participants reported having an overwhelmingly positive experience at the workshop, noting their satisfaction with the didactic and practical exercise. One hundred percent of participants reported that the workshop was either "good" or "excellent." The rating respondents provided for the "user-friendliness" and "usefulness" of the ProVac tools was also overwhelmingly positive. Furthermore, respondents highlighted the vaccine priorities for the Region of the Americas through their responses regarding upcoming/pending policy decisions for new vaccine introductions. ■

Starting in 2015, the Immunization Newsletter will be published four times a year, in English, Spanish, and French by the Comprehensive Family 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.

An electronic compilation of the Newsletter, "Thirty years of Immunization Newsletter: the History of the EPI in the Americas," is now available at: www.paho.org/inb.

References to commercial products and the publication of signed articles in this Newsletter do not constitute endorsement by PAHO/WHO, nor do they necessarily represent the policy of the Organization.

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COLUMN: What I Have Learned...

By Dr. Ida Berenice Molina, Manager of the Expanded Program on Immunization (EPI) in Honduras

I have managed the Expanded Program on Immunization (EPI) in Honduras for 25 years, which has been a learning experience that has allowed me to gain insight on the evolution of the technical, administrative and managerial aspects of the EPI, while facing the various challenges inherent in a developing country with financial issues. It has been extremely rewarding to see the EPI achieve goals, like the work done towards controlling, eliminating and eradicating vaccine-preventable diseases, despite these limitations.

I have learned that situations can change and that we must be prepared to face problems and make timely decisions in order to reach and maintain our achievements through political support, strategic alliances from international cooperation, academia and civil society and, most importantly, through collaboration with health workers who have shown commitment and dedication at all levels.

There has been consistent political commitment in allocating national funding for vaccine and supply procurement in Honduras, as well as support from donors to overcome financial gaps for activities. There has also been strong technical support from the

National Immunization Technical Advisory Group (NITAG), National Certification Committee for Polio Eradication, and PAHO/WHO, among others.

Sharing experiences with EPI managers from other countries is essential, as is being able to count on a legal framework that protects vaccination as a public good, ensuring the program's sustainability, annual and multi-year planning, programming, coordination, monitoring, supervision and systematic evaluation of all of its processes. It is necessary, however, to understand the work being done at each level, as this allows us to have a comprehensive vision of the program, its strengths, weaknesses, needs and challenges. The transfer of knowledge and skills is also important for the program's functionality.

Likewise, the dedication of Honduras' health workers has been key to the EPI's success. Fifteen years ago, I was in one of Honduras' most difficult-to-access areas, the Gracias a Dios department. I was supervising the work of a nursing assistant and upon analyzing,



Photo credit: Dr. Ida Berenice Molina.

noticed that 95% vaccination coverage could not be reached because five children still had to be vaccinated. When I offered her my recommendations to vaccinate them, she said, "Doctor, I already looked for these children and I could not find them. I invite you to join me as I walk five hours under the sun to reach my communities, with the vaccine cooler and a stick to avoid snakes."

It is with that memory that I wish to recognize the thousands of local health workers in Honduras. Although they are sometimes anonymous, they are true vaccination heroes who risk their lives in geographically inaccessible areas, defy public insecurity and sometimes even use their own money to call the parents of an unvaccinated child.

Their commitment has been essential to eradicate, eliminate and control vaccine-preventable diseases in not only Honduras, but in the Americas. There is no doubt that vaccination is a gesture of love made not only by parents, but also by health workers. ■

The objective of the "What I Have Learned" column is to provide a space for immunization professionals from across the Americas to share their unique experiences and lessons learned. Individuals who are interested in authoring a column are encouraged to contact Hannah Kurtis at kurtisha@paho.org.