Immunization Newsletter

Pan American Health Organization

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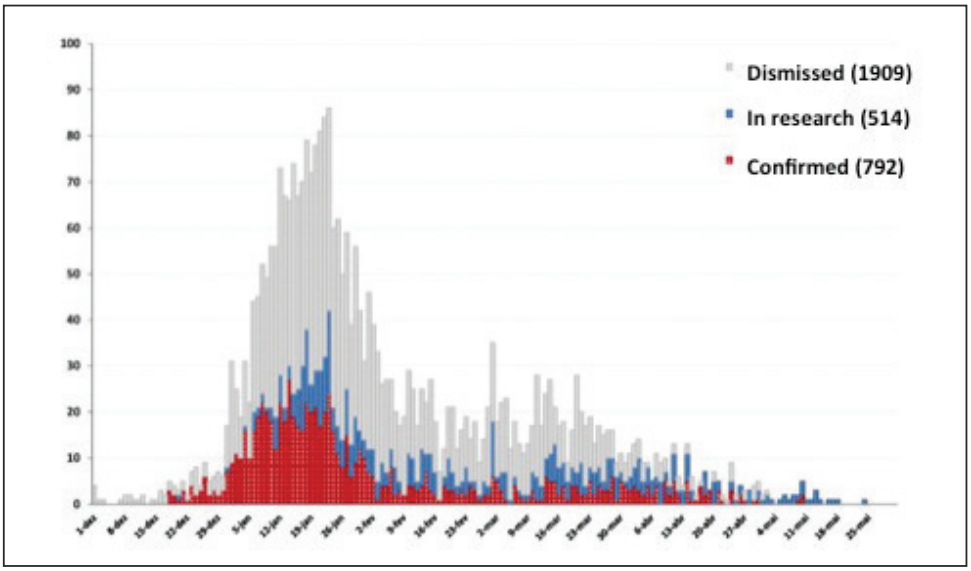
Yellow Fever Outbreak in Brazil, December 2016-May 2017

In December 2016, Brazil began reporting suspected cases of yellow fever (YF), principally in the South East region of the country. As of 31 May 2017, the YF outbreak has spread to nine Federal States (including the Federal District of Brazil), and has affected 17 Federal States, becoming the largest outbreak in the country since the 1940's. The Ministry of Health reported 3,240 suspected cases, of which 792 (24%) were laboratory-confirmed cases and 519 (16%) remain under investigation. Confirmed cases were reported from Goiás, Distrito Federal, Mato Grosso, Tocantins, Pará, Minas Gerais, Espirito Santo, São Paulo and Rio de Janeiro.

In the Southeast region, the states of Minas Gerais and Espirito Santo concentrated 94% of the confirmed YF cases: 260 (33%) in Espirito Santo and 487 (61%) in Minas Gerais. São Paulo and Rio de Janeiro reported 20 (2.5%) and 17 (2%) human confirmed cases of YF, respectively. Of the 792 laboratory-confirmed YF cases, 35% (274) resulted in death (case fatality ratio [CFR] among confirmed cases).

In addition to human disease cases, 3,850 epizootics have been reported to date (31 May), of which 642 (17%) were confirmed as related to the YF virus. Until this date, no further confirmed human cases of YF have been reported. All reported cases were consistent with sylvatic transmission and no urban YF transmission by *Aedes aegypti* has been confirmed to date.

Figure 1. Reported Cases of Yellow Fever, Brazil, 2016-2017



Source: *Informe especial febre amarela no Brasil nº 01/2017*, Ministry of Health, Brazil, 31 May 2017.

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IN THIS ISSUE

Human Papillomavirus Vaccination in Chile

From 2003 to 2007, the estimated incidence of cervical cancer in Chile was 14.6 per 100,000 people. This was close to 1,279 new cases per year, taking fourth place after breast cancer, non-melanoma skin cancer and bladder cancer. In terms of mortality, 584 women died from cervical cancer in 2012, with an adjusted mortality rate of 5.58 per 100,000 women. In 1990, the adjusted rate reached 14.34 and in 2012, 5.58 per 100,000 women[1].

Regarding condylomata, they correspond to 31% of the total of Sexually Transmitted Infections (STIs) diagnosed at the STI specialized centers in the public health system in Chile. The Department of Health Economics and the National Program for the Prevention and Control of HIV/AIDS and STIs in the Ministry of Health estimates that in 2010, 7,219 people were diagnosed with condylomata (65% women; 35% men). A report on estimated spending on condyloma diagnosis and treatment among adults and pregnant women in 2009 and 2010 revealed the financial impact associated with this diagnosis.

Human papillomavirus (HPV) is the primary cause of cervical cancer. To prevent cervical cancer, the Ministry of Health implemented HPV vaccination in 2014 through its National Immunization Program, the schedule for which has two doses with a 12-month interval between doses. Given the immune response and effectiveness of the vaccine when administered before onset of sexual activity, the vaccination strategy began with the first dose among girls in the 4th grade (9 years old) and in 2015, vaccination with the second dose began for the cohort of girls that had begun vaccination in 2014, whom had started 5th grade (10 years old).

Additionally, in 2015, a catch-up campaign was carried out aiming to protect all girls finishing primary education against HPV, administering a first dose to girls who were in 6th grade (11 years old) and 7th grade (12

[1] Chile's Ministry of Health, AUGE clinical guidelines for cervical cancer, available in Spanish at http://www.bibliotecaminsal.cl/wp/wp-content/uploads/2016/04/GPC-CaCU-Final.PLdocx.pdf

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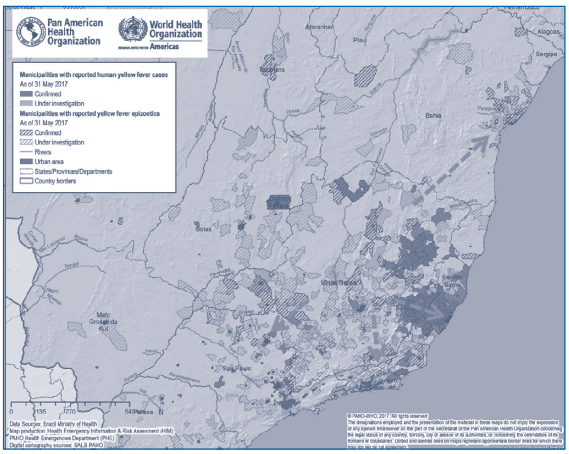
Figure 2. Geographic Distribution of Suspected and Confirmed Epizootics and YF Human Cases



Public Health Responses and Challenges

This outbreak occurred in the context of a global YF vaccine shortage. Indeed, the situation of vaccine scarcity is worrisome for other endemic countries in the Region of the Americas, half of whose demand is typically procured through the Revolving Fund; there is currently an unmet demand for what the countries require. The Revolving Fund is actively searching for solutions with other manufacturers.

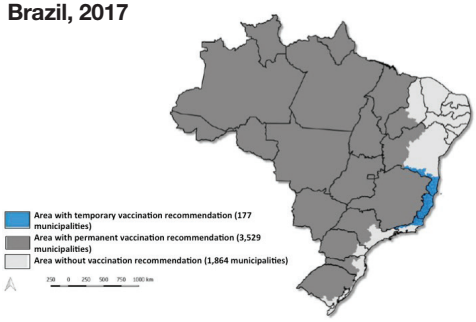
Brazil is one of the few YF vaccine manufacturers globally and has been an important contributor to the International Coordinating Group (ICG) emergency YF vaccine stockpile that consists of approximately 6 million doses available to support countries in emergency/outbreak situations in Africa and Latin America.

Prior to the YF outbreak, a total of 3,529 municipalities in 19 of 27 states in Brazil, including the Federal District, were considered to be endemic for sylvatic YF. These areas with permanent recommendations for YF vaccination covered a target population of 88.3 million inhabitants aged ≥9 months and a cohort of 1.3 million infants aged less than one year. YF vaccine was available for free and year-round at over 36,000 vaccination posts. All children received a two-dose YF series at 9 months and 4 years of age. Additionally, all residents or travelers to these areas, aged over 5 years received one dose of the YF vaccine at first contact with the health services followed by a booster dose 10 years later. From 2007 to 2016, the Expanded Program on Immunization (EPI) reported having applied a total of 58.5 million doses of the YF vaccine, corresponding to 66.5% vaccination coverage in the target population (individuals older than 9 years of age).

In response to the outbreak, Brazilian health authorities[2] expanded the list of areas in which YF vaccination was recommended, adding 240 new municipalities to the areas with recommendations **(Figure 3)** including municipalities with recent evidence of transmission of the YF virus (from July 2016 to 31 May 2017), human YF cases and non-human primate YF cases; municipalities bordering the affected areas; municipalities located between different transmission areas (affected and expanded).

In areas affected by the outbreak, the minimum age for children vaccination was lowered to 6 months of age in these areas. This dose was not considered a dose for the routine vaccination schedule. Therefore, YF routine vaccination is currently recommended in a number of municipalities in the state of Bahia and in all municipalities of Espirito Santo, Rio de Janeiro and São Paulo, with the exception of urban municipalities in the metropolitan areas of São Paulo and Rio de Janeiro.

Figure 3. Geographic Distribution of Municipalities where the YF Vaccine is Recommended by Recommendation Type, Brazil, 2017



Source: Informe especial febre amarela no Brasil nº 01/2017, Ministry of Health, Brazil, 21 March 2017.

On 10 March 2017, PAHO's Technical Advisory Group (TAG) on Vaccine-preventable Diseases held an ad-hoc virtual meeting to discuss the regional YF immunization situation in the context of the ongoing outbreak in Brazil. TAG reiterated its previous recommendations to use a single dose of the YF vaccine in endemic areas, as one dose is sufficient to provide sustained immunity and life-long protection against the disease, reaching high vaccination coverage of the entire population residing in these areas. TAG also reemphasized the importance of vaccinating travelers to endemic areas. TAG endorsed the latest WHO recommendation of using fractional doses in response to outbreaks in situations of vaccine shortage.

Given that areas of Brazil were affected during the outbreak, where no cases had been detected in years, the TAG urged countries to continue strengthening epidemiological, virological, vector, epizootic and adverse events following immunization (AEFI) surveillance and to reassess the YF risk in endemic countries taking into account ecological and entomological factors, population movements, among others. PAHO/WHO activated a dedicated Incident Management Structure (IMS) to support Brazil locally and provide support for collaboration with PAHO and WHO.

Also in response to the outbreak, the Brazilian National Immunization Technical Advisory Group (NITAG) convened an emergency meeting on 22 March 2017, recommending to temporarily suspend booster dose recommendations as part of the outbreak response, use fractional doses as part of the immunization strategy to respond to the outbreak, suspend the recommendation to separate the measles-mumps-rubella (MMR) and YF vaccine administration during the outbreak and co-administer if necessary to provide protection, particularly against YF.

When faced with a suspected or confirmed human or non-human primate case, vaccination actions including ring vaccination, and vector control strategies are intensified.

From January-May 2017, the Ministry of Health distributed approximately 26.3 million doses of YF vaccine to Minas Gerais, Espirito Santo, São Paulo, Bahia and Rio de Janeiro in an effort to intensify vaccination. In addition, around 7 million doses were distributed for routine vaccination and travelers across the country. Brazil has also distributed 3.5 million doses to municipalities with vaccination recommendations; the doses were received from the global emergency stockpile of the ICG on vaccine provision for yellow fever. AEFI Surveillance has been strengthened at the national and regional levels with support from dedicated expert committees for the classification of serious adverse events. As of May 2017, vaccination coverage has improved considerably in the affected areas; however, vaccination activities need to continue and ensure the homogeneity of coverage levels in all municipalities reaching 95% coverage.

In conclusion, the YF outbreak in Brazil originated in municipalities in the South East of the country that had recommendations in place for routine YF vaccination, but had accumulated large susceptible populations following extended periods of suboptimal vaccination coverage levels. The outbreak further spread to new areas that had not reported cases for years or that had been classified as non-endemic during previous risk assessments. Considering the dynamic nature of the disease and the constant evolution of factors that affect it, including human, host and vector behaviors, population movements and ecological factors, it is crucial to maintain high coverage levels in areas that are currently endemic in the Americas, while continuing to be vigilant through strengthening active surveillance of the virus and anticipating potential outbreak threats through continuous systematic risk assessments including the risk of YF re-urbanization. ■

[2] For further details on the epidemiological situation in Brazil, cf. the Ministry of Health of the Public Health Emergency Operations Center, (Informe do centro de operações de emergências em saúde pública sobre febre amarela no Brasil nº 43/2017, Ministry of Health, Brazil, May 31, 2017). Available in Portuguese from: http://portalarquivos.saude.gov.br/images/pdf/2017/junho/02/COES-FEBRE-AMARELA---INFORME-43---Atualiza----o-em-31maio2017.pdf

HPV CHILE continued from page 1

Chile's Ministry of Health presents the "TOGETHER FOR WOMEN. Chile Prevents Cervical Cancer HPV" campaign. Credit: Ministry of Health, Chile.

years old). This campaign was finished in 2016, when their schedules were completed with second doses in their last years of primary education, 7th and 8th grades (12 and 13 years old, respectively).

Vaccination is free and carried out in public, subsidized and private schools by a vaccination team from the nearest family health center.

Table 1 shows the coverage reached per year since integrating the HPV vaccine into the vaccination schedule.

Table 1. HPV vaccination coverage for the routine immunization program by year of vaccination, 2014-2016

	2014	2015		2016	
Programmatic/ routine HPV vaccination coverage in Chile	4th grade 1st dose	4th grade 1st dose	5th grade 2nd dose	4th grade 1st dose	5th grade 2nd dose
	86%	**85%**	**85%**	**77%**	**73%**

Source: RNI/MINEDUC (Ministry of Education)

99% of the girls who began the schedule in 2014 completed it in 2015. In 2016, coverage for the complete series decreased to 87%.

Table 2. Vaccination coverage for the catch-up campaign by year of vaccination, 2015-2016

	2015		2016	
HPV catch-up vaccination coverage	6th grade 1st dose	7th grade 1st dose	7th grade 2nd dose	8th grade 2nd dose
	84%	**82%**	**70%**	**67%**

Source: RNI/MINEDUC

Regarding the catch-up campaign that began in 2015, 82% of the girls vaccinated in 2015 completed the series in 2016.

All vaccinations are registered in the Electronic Immunization Registry system, known as the National Immunization Registry *(RNI)*. The system also captures rejections to the vaccination and the reasons, allowing to follow up on that information. **Table 3** shows that the percentage of rejections at the country level over the target population has remained under 7%. This information facilitates planning targeted interventions aimed at the population rejecting the vaccine.

Table 3. Number and percentage of HPV vaccination

Year/% of rejections	2014	%	2015	%	2016	%
Country total	5,510	5,6%	18,153	4,6%	24,310	6,6%

Source: RNI

Table 4 shows that of the 5,510 girls who rejected the HPV vaccine in 2014, 1,461 decided to be vaccinated the following year, as did 350 in 2016. This is a reversion rate of 32.9% in this group. In 2015, a total of 15,085 girls rejected the first dose, yet more than 20% reversed their decision in 2015 and 2016.

Table 4. Reversion rate with HPV vaccination rejections

Year/grade level	2014	2015	
	1st dose (4th grade)	1st dose (4th grade)	1st dose (6th and 7th grade)
Rejections	5,510	5,832	9,253
2015 vaccine acceptors who were rejecters in 2014	1,461		
2016 vaccine acceptors who were rejecters in 2014 and 2015	350	1,551	1,968
% of schoolgirls that reversed their decisions	32.9%	26.6%	21.3%

Source: RNI

The vaccine is safe and effective, given evidence from millions of doses administered at the global level. From 2014 to date, more than 855,000 doses of the vaccine have been administered in the country in the routine schedule and catch-up campaigns. During this period, there were 129 reports of events supposedly attributable to vaccination or immunization (ESAVI) for the HPV vaccine, for the most part described and known. The overall rate for ESAVI reported in Chile was considerably lower than reports from other countries and in medical literature.

Vaccination is also supported by a communication campaign including graphic and audiovisual materials in which different authorities and celebrities participate. The slogan of the strategy is **TOGETHER FOR WOMEN. Chile Prevents Cervical Cancer**. ■

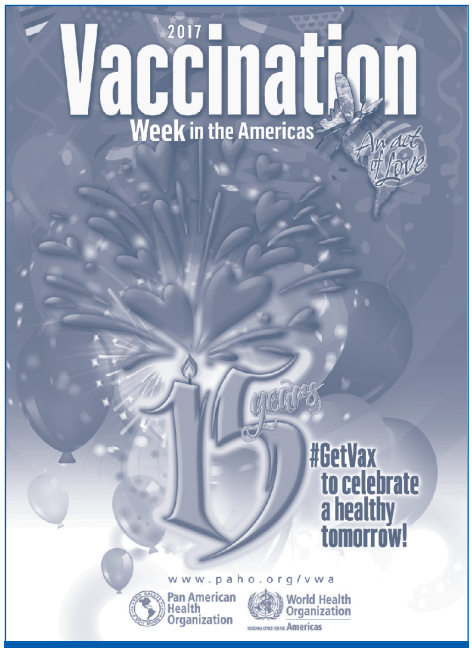
Contributed by: Pamela Burgos and Cecilia Gonzalez, Ministry of Health, Chile.

Vaccination Week in the Americas Celebrates 15 Years

This year the countries and territories of the Americas and the Pan American Health Organization (PAHO) celebrated the 15th Vaccination Week in the Americas from 22-29 April.

The slogan for 2017's campaign was "#GetVax to celebrate a healthy tomorrow," encouraging people and their families to get vaccinated today and enjoy good health tomorrow, given that vaccines offer protection against highly contagious, debilitating and potentially deadly diseases.

Countries and territories in the Region aimed to vaccinate more than 60 million people against a range of diseases. For example, Brazil targeted 50 million in its yearly massive influenza campaign. Other vaccination campaigns targeted rubella, measles, diphtheria, mumps, whooping cough, neonatal tetanus, yellow fever, rotavirus, bacterial pneumonia and the human papilloma virus (HPV).



2017 Vaccination Week in the Americas poster.

"During these past 15 years, we have demonstrated that vaccination is one of the most powerful strategies to prevent diseases and save lives," PAHO's Director Carissa F. Etienne stated. "PAHO is committed to continue working closely with the countries to vaccinate the entire population and facilitate the introduction of new vaccines at affordable prices," she added.

In 2015, rubella and congenital rubella syndrome were eliminated in the Region and in 2016, country efforts helped achieve measles elimination. Vaccination against these diseases continues to help minimize the risk of importing these diseases into a country in the Region.

Mexico's Secretary of Health José Narro Robles and PAHO Director Carissa F. Etienne launch Vaccination Week in the Americas with a healthcare worker vaccinating a child, April 2017. Credit: PAHO/WHO.

Furthermore, millions of people have been vaccinated to keep the western hemisphere free of polio for 25 years.

Since 2000, new vaccines against rotavirus, pneumococcus and HPV have been introduced in countries and territories of the Region. Currently, 34 countries and territories vaccinate against pneumococcus, 20 against rotavirus, and 24 against HPV. These achievements have been possible thanks to the dedication of thousands of health workers, who play a key role to reach everyone in their communities and take vaccines to the most vulnerable populations and hard-to-reach zones.

"We have achieved a healthier region thanks to vaccination," said the chief of PAHO's Comprehensive Family Immunization Unit, Cuauhtémoc Ruiz-Matus. "We will continue working so no children will suffer or die from a disease that we can prevent with vaccination," he added.

Actions for Vaccination Week in the Americas have also gone beyond the immunization field. Health personnel have taken advantage of the initiative to implement other health actions, like deworming, vitamin A administration, and breastfeeding promotion. Similarly, community mobilization for vaccination has helped close gaps that separate people from needed attention.

Vaccination Week in the Americas started in 2003 as an effort by the countries of the region to combat a measles outbreak between Colombia and Venezuela. Although health workers vaccinate people daily, the special effort to combat the outbreak grew into an annual event to promote vaccination and reach those who may have missed routine immunization. Versions of Vaccination Week were subsequently adopted in other WHO regions, and in 2012, it became a global movement when the World Health Assembly endorsed World Immunization Week and 180 countries around the world began celebrating it.

Regional Launches in Mexico and Brazil

A series of launch events for Vaccination Week will take place in Mexico and Brazil. On April 24, Mexico hosted the first regional launch. This activity took place at 10am in the main courtyard of Mexico's Secretary of Health, located in Lieja 7, Mexico City. The Secretary of Health, Jose Narro, and PAHO Director, Carissa F. Etienne, participated along with other authorities.

Mexico has a long history in carrying out vaccination campaigns and other integrated activities to protect its population's health. The country holds National Health Weeks in February, May and October. The intensive vaccination activities it carries out each May have contributed to the regional achievements of Vaccination Week in the Americas.

2017 Vaccination Week in the Americas poster.

The second event took place on 29 April, when an indigenous village in the Brazilian state of Rondônia, known as Linea 9 Amaral and belonging to the indigenous group Suri, hosted a regional launch of Vaccination Week to bring vaccines to a priority group of this initiative. The activity took place under the framework of celebrations for Vaccination Month of Indigenous People, organized by Brazil.

For more information on Vaccination Week in the Americas, visit www.paho.org/vwa. ■

PAHO Publishes Maternal and Neonatal Immunization Field Guide for Latin America and the Caribbean

The Comprehensive Family Immunization Unit of the Pan American Health Organization published the Maternal and Neonatal Immunization Field Guide in early 2017. This guide provides a practical road map of maternal and neonatal immunization to healthcare workers at all levels of the health system, integrating immunization programs with maternal and child health services. The guide might also be of use for health education programs.

The following chart shows the **Regional Maternal and Neonatal Immunization Schedule** and was excerpted from pages 31-32 of the guide, which can be found in its entirety (in English and Spanish) at http://bit.ly/MNIFGLAC. ■

Regional maternal and neonatal immunization schedule

VACCINES RECOMMENDED DURING PREGNANCY

Vaccine	Pre-pregnancy	Pregnancy	Post-partum	Year of PAHO/TAG recommendation
Tetanus/diphteria	Yes, ideal time	Yes, two doses if she was not previously vaccinated	Yes, to complete schedule	2017[a]
Inactivated influenza		Yes, ideal time	Yes, if she was not vaccinated during pregnancy, to protect the newborn	2012[b]

VACCINES RECOMMENDED DURING PREGNANCY IN SPECIAL SITUATIONS ONLY

Vaccine	Pre-pregnancy	Pregnancy	Post-partum	Year of PAHO/TAG recommendation
Tdap		Yes, during outbreaks (ideal moment between 27–36 weeks of gestation)	Yes	2014[c]
Hepatitis B		Yes, if she did not complete schedule and if under high risk situation (e.g., more than one sexual partner during the previous six months, STD, IDU, partner + for HBsAg)	Yes, to complete schedule (three doses)	
Hepatitis A		Yes, during outbreaks		2013[d]
Yellow fever	Yes, ideal moment (in endemic areas)	Yes, prior to travel to endemic areas under current outbreak, with prior risk/ benefit analysis		2013[e]

VACCINES RECOMMENDED DURING PREGNANCY IN SPECIAL SITUATIONS ONLY

Vaccine	Pre-pregnancy	Pregnancy	Post-partum	Year of PAHO/TAG recommendation
IPV		Yes, prior to travel to endemic areas under current outbreak		2013[f]
OPV		Yes, prior to travel to endemic areas under current outbreak		2015[f]
Rabies		After high-risk exposure		2013[g]
Meningococcus conjugate		Yes, during outbreaks		2013[h]
Meningococcus polysaccharide (MPSV4)		Yes, during outbreaks		2013[h]

VACCINES NOT RECOMMENDED DURING PREGNANCY

Vaccine	Pre-pregnancy	Pregnancy	Post-partum	Year of PAHO/TAG recommendation
Rubella	Yes, ideal moment	No	Yes, if not vaccinated during pre-pregnancy	2013
Measles				2013
Mumps				2013
HPV	Yes, ideal moment	No		2013

VACCINES RECOMMENDED FOR THE NEWBORN

Newborn vaccines	Birth dose	Year of PAHO/TAG recommendation
BCG	As soon as possible after birth	2004[i]
Hepatitis B	In the first 24 hours after birth	2011[j,k]

STD: sexually transmitted disease; **IDU:** injection drug user; **HBsAG:** hepatitis B surface antigen.

[a] WHO position paper on tetanus vaccination, Wkly Epidemiol Rec., No 6, 2017; 92: 53–76

[b] World Health Organization. Vaccines against influenza. WHO position paper, November 2012. Wkly Epidemiol Rec. 2012; 87: 461-76.

[c] Final report of the XXII Technical Advisory Group (TAG) Meeting on Vaccine-preventable Diseases of the Pan American Health Organization, held in Washington, DC, USA, 1-2 July 2014.

[d] WHO position paper on Hepatitis A vaccination, Wkly Epidemiol Rec., No. 28-29, 2012; 87: 261–276.

[e] WHO position paper on yellow fever vaccines and vaccination, No. 27, 2013; 88: 269–284.

[f] WHO position paper on Polio vaccines, Wkly Epidemiol Rec., No. 12, 2016; 91: 145–168.

[g] World Health Organization. WHO Expert Consultation on Rabies. Geneva: WHO; 2013.

[h] WHO position paper on meningococcal vaccines 2011, Wkly Epidemiol Rec., No. 47, 2011; 86: 521–540.

[i] Final report of the XVI Technical Advisory Group (TAG) Meeting on Vaccine-preventable Diseases of the Pan American Health Organization, held in Mexico City, Mexico, November 3-5, 2004.

[j] World Health Organization. Position paper on Hepatitis B, No. 40, 2009; 84: 405-420.

[k] Final report of the XIX Technical Advisory Group (TAG) Meeting on Vaccine-preventable Diseases of the Pan American Health Organization, held in Buenos Aires, Argentina, July 2011.

The Caribbean Prepares to Introduce the Human Papillomavirus Vaccine in the Routine Schedule

Representatives from Antigua and Barbuda, Belize, British Virgin Islands, Curacao, Guyana, Jamaica, Montserrat, St. Lucia, St. Kitts and Nevis, St. Vincent and Grenadines and Turks and Caicos, as well as immunization and communication experts from PAHO/WHO met in Miami, Florida in the United States on 22-23 May 2017 to support Caribbean countries to elaborate a plan to introduce the human papilloma virus (HPV) vaccine, with a strong focus on preparing key messages about the vaccine and anticipating communication needs and a crisis response.

Many countries in the Region, during introduction of the HPV vaccine, have needed to respond to clustered anxiety temporarily associated with vaccination among adolescents, including messages that reemphasize evidence on the vaccine's safety and efficacy. For this reason, PAHO convened a meeting to help Caribbean countries develop HPV vaccine introduction plans and to provide training around effective communication strategies.

The first day of the meeting included presentations about the HPV-associated disease and its prevention, PAHO/WHO recommendations on the use of HPV vaccines, lessons learned on the introduction of the HPV vaccine in

Participants at the HPV vaccine introduction meeting in Miami, Florida, May 2017. Credit: PAHO/WHO. Credit: PAHO/WHO.

Participants at the HPV vaccine introduction meeting in Miami, Florida, May 2017. Credit: PAHO/WHO.

Participants at the HPV vaccine introduction meeting in Miami, Florida, May 2017. Credit: PAHO/WHO.

Belize and a review of the main considerations when elaborating an introduction plan. The participants worked in groups to elaborate and/or review HPV vaccine introduction plans.

The second day was focused on providing training on how to develop an effective communication plan for HPV vaccination in the routine program, including the development of key messages. Guyana and Canada presented their lessons learned on effective communication around HPV vaccination. In their work groups, participants developed plans for communication strategies to support the introduction and scale-up of the vaccine.

The meeting evaluation indicated that participants were content with the meeting outcomes, some commenting that it was the best meeting they had attended. ■

NITAG Launches in Haiti

Newly appointed members of the National Immunization Technical Advisory Group (NITAG) in Haiti, General Director of the Ministry of Health, EPI Manager, Members of the Ministry, civil society organizations (CSO) representing, CDC, UNICEF and PAHO/WHO launched the NITAG of Haiti in Port-au-Prince, Haiti on 8 March 2017.

On behalf of the Ministry of Health, the General Director of the Ministry of Health launched the NITAG. He thanked each of the newly appointed members one by one. The areas of expertise represented in the NITAG are: pediatrics, epidemiology, research and vaccinology, gynecology, sociology, anthropology, bacteriology and virology, public health, communication and social mobilization, health economy and immunization logistics. As of March 2017, the NITAG has a total of 13 members.

The launch ceremony continued with a review of the NITAG terms of reference, which include the mandate of the NITAG, its role and responsibilities and information on the organization of the Secretariat. The terms of reference also include the frequency of the meetings

Inaugural ceremony of the NITAG in Haiti. Credit: Jennifer Sanwogou, PAHO/WHO.

(two annual ordinary sessions and possibility for the chair or the Ministry of Health to request an extraordinary meeting) and the functional modalities of the NITAG meetings.

The terms of reference include the request that each member of the NITAG has to declare the absence of conflict of interest before they participate to any session. The official ceremony continued with a presentation made by Dr. Jean Andre from PAHO's Haiti office. He provided information on NITAGs in the global and regional context (GVAP and RIAP), enforced the importance of NITAGs and explained the support that can be provided notably by the NITAG Resource Center.

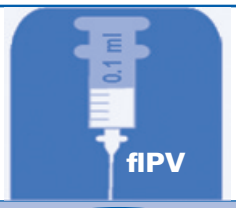
The chairman of the NITAG ended the ceremony asking for the first meeting to be organized rapidly as public health in general and immunization in particular in Haiti is urging all goodwill to start work. ■

What is a Fractional Dose of IPV?

A fractional dose of the inactivated polio vaccine (fIPV) is equal to 1/5 of a standard dose. Studies show that two doses of fIPV administered by intradermal injection produce an even stronger immune response than a single full dose of the inactivated polio vaccine (IPV).

In March 2017, the Technical Advisory Group (TAG) on Vaccine-preventable Diseases recommended that all countries using more than 100,000 doses of IPV each year switch to fIPV[3].

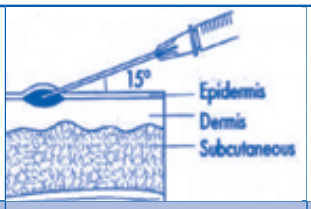
1. When to give fIPV



2 months	4 months	6 months	2 booster doses (as per country schedule)

Fractional IPV (fIPV) should be given at the first and second vaccination visits (usually at 2 and 4 months) along with the other recommended vaccinations (pentavalent, pneumococcal, rotavirus).

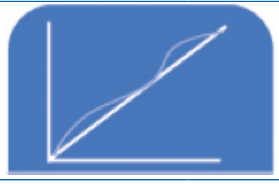
2. How to give fIPV



IPV vials	0.1 ml dose	Intradermal	Upper arm
A 5-dose vial, will provide **25 fractional doses per vial**; Remember open vials of IPV can be used for up to **28 days**, as per the multi-dose open vial policy[4].	A fractional dose is 1/5 of a standard dose = **0.1 ml** fIPV is administered with a **0.1 ml syringe**	fIPV is given as an **intradermal injection (ID)**, at a 10-15° angle, by the same technique as the BCG injection.	Administer fIPV in the upper arm (opposite to that in which the BCG was given).

Remember to record IPV administered as fractional dose (fIPV)

3. Give with other vaccines



Saves time and effort **Improves coverage** **Healthier children**

Help the children in your community by giving the right vaccines at the right time. It will save you time, make the health clinic more efficient, and improve coverage. Most importantly it will protect children from serious and sometimes deadly diseases.

Key messages to deliver to caregivers

1. fIPV is very safe

- Vaccines like IPV protect babies when they need it most.
- It is safe for your child to get 3 or more injections at one visit.
- IPV is needed to protect every child and is safe to give at 2 and 4 months.

2. fIPV is very effective

- Two fractional doses of IPV (given intradermally) produces even better immunogenicity than a single standard dose (intramuscular).
- It is very important to bring your child back for the second dose of IPV to ensure full protection!

3. You can lessen pain

- **Hold your baby on your lap.** Baby's feet should be between your thighs to help keep baby still. Hold arms still. You can breastfeed while baby is getting vaccinated.
- **Get all recommended shots on time.** It is better for your child to experience discomfort during one visit, rather than discomfort during two separate visits.
- **Be gentle around baby's injection sites.** Injection sites may have some redness and feel sore.

4. Baby's vaccines are important

- Polio can paralyze your children – but vaccines can protect them from polio.
- In addition to polio, vaccines can protect your children from other very serious and sometimes deadly diseases.
- Vaccinations give kids a healthy future.

Source: Global Polio Eradication Initiative, 2017.

[3] "How to Face the Global IPV Shortage". Immunization Newsletter. 2017. Vol. XXXIX. Number 1. Pp. 1-4. Accessible at www.paho.org/immunization/newsletter

[4] WHO's Multi-dose Vial Policy, 2014 revision, is accessible in English and French at http://bit.ly/multidose

Starting in 2015, the Immunization Newsletter is being 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.

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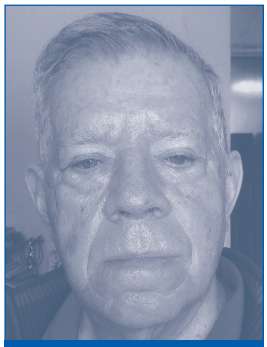
What I Have Learned…

By Dr. Teodoro Carrada Bravo, former field epidemiologist and health educator for the Mexican Social Security Institute

Upon returning to Mexico from London, England in 1974, I was hired as a field epidemiologist and health educator by the Mexican Social Security Institute. I dealt with frequent outbreaks of measles, paralytic poliomyelitis, whooping cough, human rabies, typhoid fever, cholera, cutaneous leishmaniasis, neonatal tetanus, dengue hemorrhagic fever and syphilis, mainly in the country's marginalized neighborhoods and rural communities.

On 30 July 1985, I went to Ticul, Yucatán, a Mayan-speaking town, where three suspected pediatric cases of pharyngeal diphtheria had been reported in a family that had never been vaccinated. I examined the patients and close contacts and took throat swabs. In the afternoon, I prepared tellurite blood agar to inoculate with the specimens, and before dusk I did an autopsy on an eight-year-old girl who had died from membranous pharyngotonsillitis with airway obstruction and myocarditis. In the post-mortem study, I found whitish adherent pseudomembranes with abundant purulent discharge in the trachea and main bronchi. I photographed the organs and took additional specimens for bacteriological and histopathological study. The following day, the cultures turned out positive. Microscopic examination of the colonies revealed clumps of bacilli with metachromatic granules (Albert's stain). The laboratory of the H. Nocuchi Institute in Mérida confirmed toxicity of the isolated strain by intradermal neutralization test in a guinea pig.



Dr. Teodoro Carrada Bravo.

Having established harmonious coordination with the health sector, a vaccination survey was conducted in children aged <9 years: only 49% of respondents had complete vaccination schedules with three doses of DPT. Additionally, 70 serum samples were obtained and diphtheria antitoxin levels were <0.01 IU/ml. or negative in 34.2%. I reported on the magnitude and severity of the outbreak to the local physicians, and at night in my hotel I prepared notes for the press that would not cause alarm. During the next two weeks, 14,172 doses of DPT were administered in Ticul and neighboring villages. New suspected cases were treated with antibiotics and ≥20,000 IU of diphtheria antitoxin. These measures halted the outbreak. Diphtheria had not been reported in Yucatán since 1978. On my return to Mexico City, I submitted the epidemiological report and wrote a scholarly communication that was accepted for publication in the *Boletín del Hospital Infantil de México* [1986; 43 (11): 688-692].

The role of the field epidemiologist is to work quickly and well, using the almost-always limited local resources. It is most important to win the trust and support of the affected population. The struggle was tough and complex, but this is how Mexico was freed from deadly diphtheria and other long-standing diseases.

In my happy old age I am very pleased to share this experience with you, which was successful thanks to the support of my Yucatecan colleagues, and professional training received in the classrooms and laboratories of the University of London, my beloved alma mater, to which I owe eternal gratitude. ■

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 Octavia Silva at silvao@paho.org.