Immunization Newsletter

Pan American Health Organization

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Regional Monitoring Commission on Measles and Rubella Post-Elimination Meets at PAHO

A Plan of Action was approved by Member States at PAHO's 29th Pan American Sanitary Conference in 2017 to monitor the sustainability of measles, rubella and congenital rubella syndrome (CRS) elimination in the Americas for the period 2018-2023. In this context, in 2018, PAHO's Technical Advisory Group (TAG) on Vaccine-preventable Diseases recommended establishing a group of experts to monitor the sustainability of measles, rubella and CRS elimination in the Region of the Americas. PAHO's Director convened a Measles and Rubella Regional Monitoring and Re-Verification Commission (MR-RMVC) to this end, which was established during their first meeting held 18 January 2019.

The Region of the Americas eliminated the endemic measles virus in 2016, but since 2017, the Region has experienced measles outbreaks in various countries because of imported measles viruses from other regions in the world[1]; the largest and most challenging to control occurred in Venezuela and Brazil. Many strategies like mass vaccination and lowering the age for vaccination have been made by the ministries of health of these countries, with PAHO support, to control the outbreaks and prevent further spread of the measles virus among unvaccinated populations. Despite these efforts, the measles outbreak in Venezuela has lasted for a period exceeding 12 months and the Region can no longer claim to be free of endemic measles.

Comprised by a group of eight renown experts from the fields of epidemiology, immunization, virology, molecular biology and clinical medicine, the MR-RMVC has the purpose of monitoring the sustainability of measles, rubella and CRS elimination in the Region of the Americas, as well as developing a new regional framework aligned with the regional Plan of Action for the Sustainability of Measles, Rubella and CRS Elimination.

They will also support PAHO's ongoing efforts of advocacy at the highest political level, halting measles outbreaks, verifying the evidence for the re-certification of countries where endemic transmission has been reestablished. The MR-RMVC will also work very closely with other regional and global advisory bodies such as PAHO's TAG, the SAGE's Working Group on Measles and Rubella from WHO, among others.

The Commission has had two virtual meetings since being established. As was previously mentioned, the first meeting was held on 18 January 2019, during which PAHO's Assistant Director, Dr. Jarbas Barbosa da Silva, officially established the members, including Dr. Jon Andrus as its President. The discussion during this meeting included an overview of the status of outbreaks in the Region, as well as the steps the MR-RMVC will take towards developing a working plan and timeline to implement their activities.

The Commission's second meeting took place on 26 February 2019. This meeting focused on the outbreak in Brazil, country visits to Brazil and Colombia, as well as a discussion and approval of their working plan and timeline. Finally, the MR-RMVC also touched on the agenda for their next meeting, which will be held in Cartagena, Colombia in July, as part of the 25th TAG Meeting. ■

[1] To see more information about these outbreaks, refer to the September 2018 issue of the *Immunization Newsletter*, available at www.paho.org/immunization/newsletter

IN THIS ISSUE

PAHO and PATH Launch New Resource to Improve Data Use for Immunization

Within global health, it is widely acknowledged that a cornerstone of well-functioning health systems is data of high enough quality to guide decision-making. Yet despite international efforts to improve the quality of health data, including in the immunization field, increasing data use for making decisions remains a challenge, especially at the level of health care delivery.[2] There is a need to take stock of the evidence from existing efforts to strengthen immunization data and identify effective and ineffective approaches, as well as any knowledge gaps. While advances in information technology have led to continuous increases in the amount of health data available, data remains an underutilized resource in the design and implementation of immunization programs throughout the world.

The Pan American Health Organization (PAHO) and PATH set out to address these needs and concerns in a joint project funded by the Bill and Melinda Gates Foundation, that has culminated in a new report, *Immunization Data: Evidence for Action (IDEA): A Realist Review of What Works to Improve Data Use for Immunization, Evidence from low- and middle-income countries*, which provides the immunization community with clear, proven strategies for improving the quality and use of data. Additionally, the IDEA review outlines how funders, policymakers, and program implementers can incorporate these best practices to improve the efficacy of state, regional, and national immunization programs.

The report is already generating positive feedback and facilitating conversations amongst the global data community, regional partners, and Member States. "The Region of the Americas has some of the highest levels of vaccination coverage in the world but despite this, many hard-to-reach populations are still left behind," said Dr. Martha Velandia, regional immunization advisor at PAHO. "Ensuring that practitioners have access to rigorous immunization data is vital for the design and implementation of evidence-

[2] Karuri J, Waiganjo P, Orwa D, Manya A. DHIS2: The tool to improve health data demand and use in Kenya. J Health Inform Dev Ctries [Internet]. 2014 Mar 18 [accessed: 9 September 2018];8(1). Available at: http://www.jhidc.org/index.php/jhidc/article/view/113.

IDEA continued on page 2

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based programs that we know will work. The IDEA review is a huge step towards compiling this evidence and highlighting the areas where more data is needed," she added.

PAHO and PATH conducted a "realist" systematic review of existing research evidence to answer two principal research questions:

1. What are the most effective interventions to improve the use of data for immunization program and policy decision-making?
2. Why and how do these interventions produce the outcomes that they do?

The realist review approach, unlike a traditional systematic review, does not exclude evidence based on study design or quality. By considering information and evidence from a broader range of sources, realist reviews are well suited to study complex interventions. PAHO and PATH developed a **Theory of Change (TOC) (figure 1)** based on their review of existing health information and data use frameworks and logic models, as well as systematic reviews on topics related to health information system strengthening and evidence-informed decision-making to guide the review. The TOC framed their hypothesis of the theorized mechanisms and contextual factors that work together to help decision-makers translate immunization data into information, and ultimately action. PAHO and PATH identified intermediate outcomes as the necessary precursors to data use, including data quality and availability, analysis, synthesis, and discussion of data. The ultimate outcomes of interest in this review are the data use actions that are based on WHO's Global Framework to Strengthen Immunization and Surveillance Data for Decision-making. The TOC guided their analysis of how interventions led to improved data use; it also evolved iteratively over the course of the review as they gathered new evidence.

PAHO and PATH reviewed 426 documents from published and grey literature and identified ten categories of data use interventions, that can be found in the y axis of the **evidence gap map matrix (figure 2)**. They shared preliminary findings with immunization stakeholders during a workshop in May 2018; based on the feedback they also identified areas in which experience and evidence from other health sectors were applicable and expanded their search, adding another 123 documents to the body of literature reviewed. Because of the nascence of the field, much of the immunization sector's knowledge on data quality and use interventions has not been rigorously evaluated or published. In addition to including studies and evaluations that applied scientific research methods or evaluation design, PAHO and PATH also considered literature that did not qualify as a study or evaluation but had strong theoretical plausibility of improving data use, as judged by the TOC. They assessed the quality of studies using the Mixed Methods Appraisal Tool (MMAT), a checklist designed by Pace et al. for systematic literature reviews for appraising the quality of quantitative, qualitative, and mixed methods studies. They referred to these records as promising strategies, which they define as strategies that have not yet proven successful but have potential for future success. They coded the included records and synthesized the evidence according to domains in the TOC. They rated the certainty of evidence after considering the study design and study quality, the number of studies and their agreement, and the context dependence of the evidence. The results were summarized in the evidence gap map matrix and in a synthesis table (can be found at findyourfinding.org).

Despite the growing recognition that quality,

Figure 1. IDEA Theory of Change

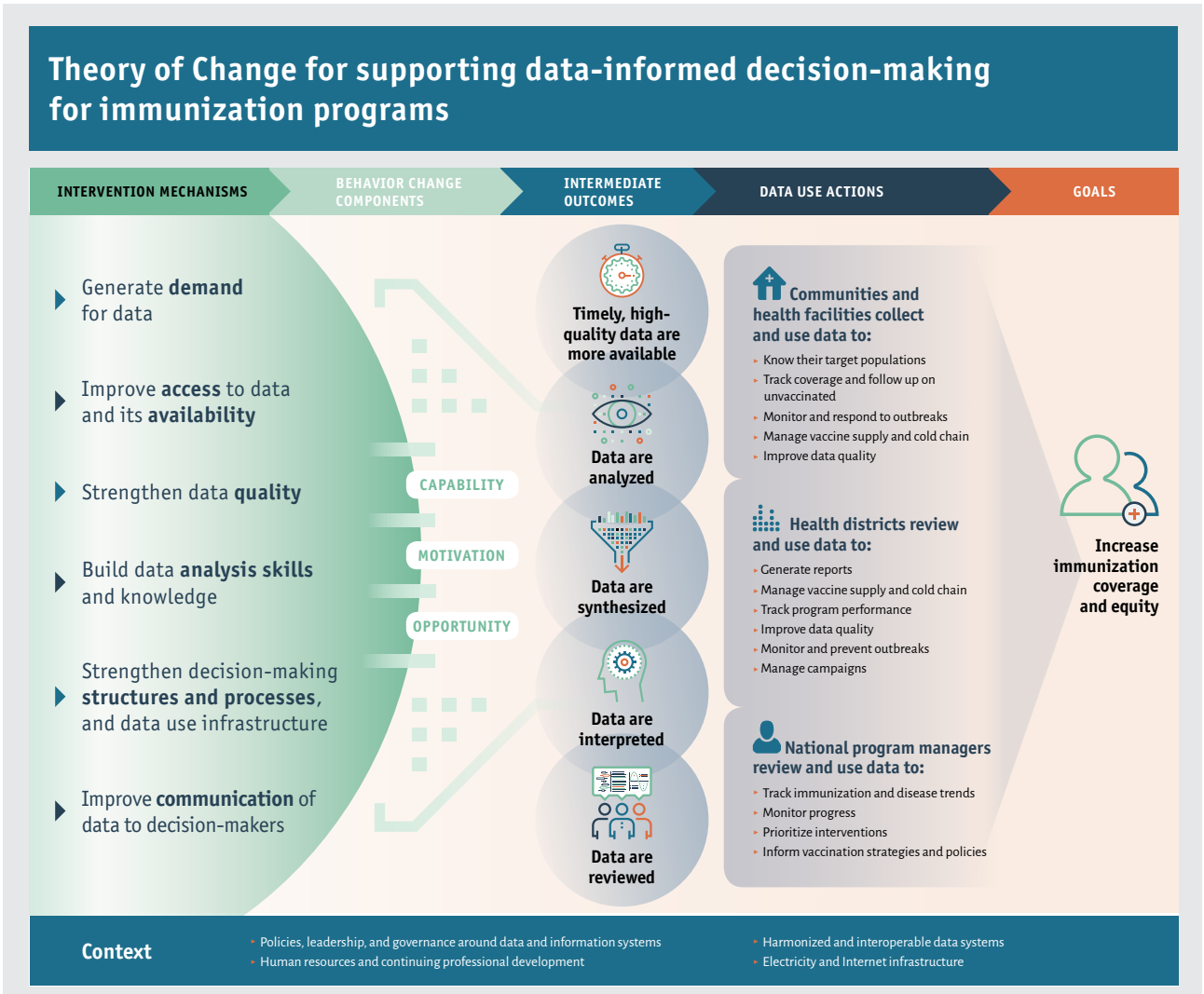

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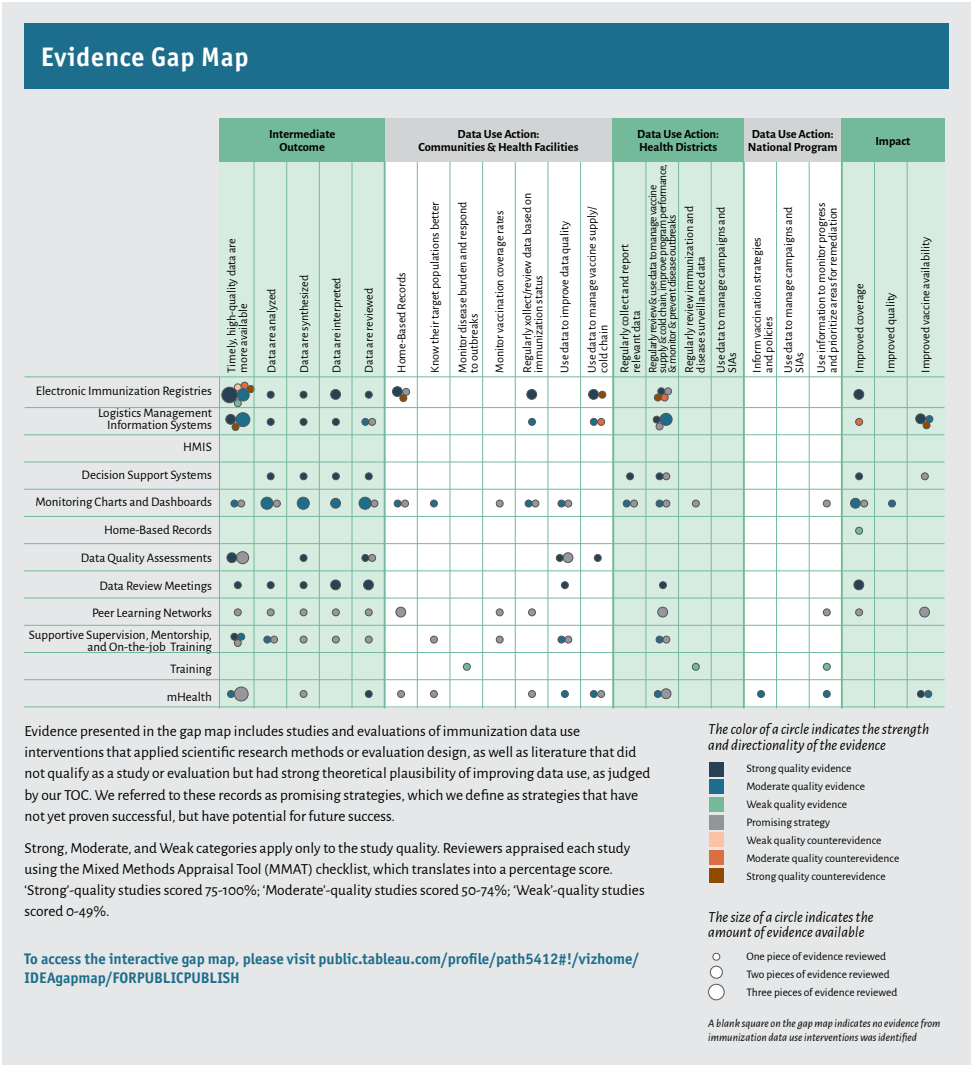
Figure 2. Evidence Gap Map



Evidence presented in the gap map includes studies and evaluations of immunization data use interventions that applied scientific research methods or evaluation design, as well as literature that did not qualify as a study or evaluation but had strong theoretical plausibility of improving data use, as judged by our TOC. We referred to these records as promising strategies, which we define as strategies that have not yet proven successful, but have potential for future success.

Strong, Moderate, and Weak categories apply only to the study quality. Reviewers appraised each study using the Mixed Methods Appraisal Tool (MMAT) checklist, which translates into a percentage score. 'Strong'-quality studies scored 75-100%; 'Moderate'-quality studies scored 50-74%; 'Weak'-quality studies scored 0-49%.

To access the interactive gap map, please visit public.tableau.com/profile/path5412#!/vizhome/IDEAgapmap/FORPUBLICPUBLISH

timely, and accessible data are essential to every country's ability to deliver vaccines effectively to its population, few data use interventions have been rigorously studied or evaluated. There is limited evidence on how data can be effectively used to support data-driven action and decision-making. More evidence was found on the intermediate outcomes of data use interventions on data quality, availability, analysis, synthesis, interpretation, and review. The information and evidence collected permitted developing stronger evidence-informed theories about what works to improve the quality and use of data, for whom, and under what circumstances. The following conclusions were reached:

1. Multicomponent interventions were the most prevalent and often more effective. Nearly all the interventions reviewed used more than one strategy. More comprehensive strategies that addressed barriers at various stages of data use were more likely to achieve results.

2. Interventions that took a health system approach to institutionalizing data use were more likely to succeed and be sustained over the long term. This occurred by routinely conducting data review meetings, creating national guidelines and protocols on data use, hiring data managers at all levels of the health system, and incorporating training in data use in national curricula.

3. Although limited evidence was found on the effectiveness of health management information systems (HMIS), including electronic immunization registries (EIRs), on data use, they remain promising interventions when accompanied by complementary activities. Transitioning from paper to computerized HMIS across all levels of the health system has made higher-quality data more available to decision-makers. Phasing in computerized systems incrementally after establishing reliable infrastructure and human resource capacity improves their likelihood for success.

4. Computerized logistics management information systems (LMIS) have made higher-quality data more available to decision-makers to improve supply chain management, especially at district levels and higher. Although implementing computerized LMIS as a single intervention improves data quality and use, even greater gains were made when other data use activities complemented the LMIS.

5. There is a dynamic, cyclical relationship between data quality and data use. Although results of this review confirm that data quality is a necessary precursor to data use, limited evidence was found indicating that single-component interventions increased data quality and improved data use. Conversely, stronger evidence was found that data quality improved because of increased use of data. More data use generated demand for higher-quality data, which in turn drove actions to improve data quality; as data quality improved, users were able to better trust the data, thus reinforcing data use.

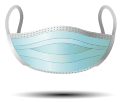
This review was limited by several factors. Notably the findings relied on what was reported in the literature, which sometimes lacked a thorough description of the factors that contributed to an intervention's success or failure and may have caused missing important contextual considerations. The focus on routine immunization data helped to manage the scope of the review but risks further siloing immunization programs. The review was expanded to include literature from other health sectors (HIV and maternal and child health, specifically); however, these efforts were not as comprehensive and likely failed to capture all the available evidence on the topic. PAHO and PATH also found limited studies and evaluations that included cost-effectiveness analyses and therefore were unable to examine the cost-effectiveness of interventions included in this review. Many promising reviews of data use beyond immunization are underway. The entire body of work should be considered together to inform strategic and cross-programmatic investments in interventions to improve data use.

This review targets various audiences and intends to provide relevant information and evidence on the most effective practices so that policy and program decision-makers, as well as funders and implementers, may choose and implement approaches with the highest impact on improving the use of data to expand vaccine coverage and equity, and ultimately reduce, or even eliminate, vaccine-preventable diseases. PAHO and PATH anticipate that these findings will also be of interest to researchers and evaluators to prioritize gaps in the existing knowledge. Recommendations are segmented by audience group to encourage action and can be fully explored at findyourfinding.org. ■

Three Myths about Influenza Vaccination

Myth 1

Influenza is like a cold: FALSE



Influenza is a disease with symptoms of high fever, cough, chills, muscle and joint pain, and headache and can cause severe complications that require hospitalization and even cause death[3]. TRUE

- Colds are caused by other viruses and tend to have symptoms of runny nose, scratchy throat and perhaps a little fever, but they are unlikely to cause complications requiring hospitalization.
- Some population groups are more at risk of complications from influenza (young children, pregnant women, the elderly, and people with chronic diseases such as diabetes, and pulmonary and heart diseases), although sometimes children and young people with no risk factors can also have complications. It has been observed that patients hospitalized with influenza who have not been vaccinated are two to five times more likely to die than those who have been previously vaccinated.[4]
- In Chile, an estimated 4,000 to 6,500 hospitalizations (largely aged >65 and <5 years) and 450 to 500 deaths (largely aged >65 years) related to influenza occur every year.[5]

Myth 2

The influenza vaccine can cause influenza: FALSE

Influenza vaccines have been used for decades, are safe, and cannot cause influenza. TRUE

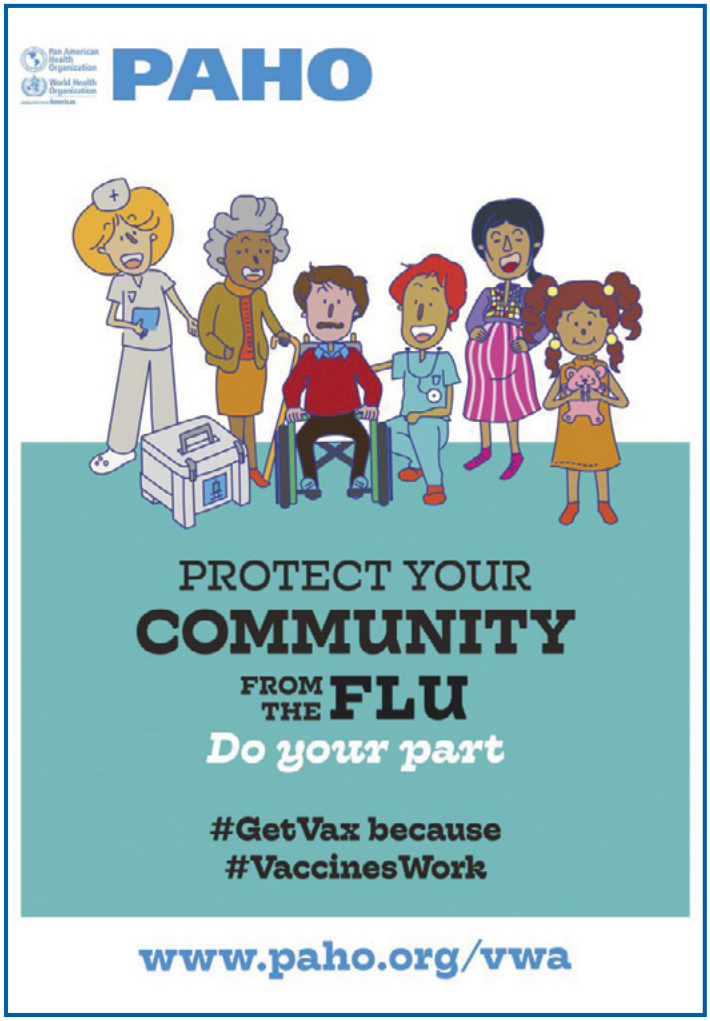
- Flu shots contain inactivated (killed) viruses or are produced from a viral gene (recombinant); in either case, it is impossible for someone to contract influenza from the vaccine.
- Nasal-spray[6] flu vaccine is made from live (attenuated) viruses that are incapable of replicating or infecting the lungs or places where the temperature is warm and causing influenza.
- It takes the body about two weeks after being vaccinated to be protected, and during this time a person can be infected by the influenza virus or other respiratory viruses that can cause flu-like symptoms.
- The most frequent vaccine-related side effects are mild (pain and redness at the injection site).

Myth 3

The influenza vaccine is not effective: FALSE

Effectiveness (regarding protection) of the vaccine tends to be moderate (around 40% to 60%)[7] and changes every year. It depends on age, health condition, and how well the viruses used for the vaccines match those that are circulating. TRUE

- The virus is constantly changing, making it necessary to annually update the vaccine's composition and to vaccinate at-risk groups annually.
- Health workers should be vaccinated to keep them from becoming infected and transmitting influenza to patients. Furthermore, they play a key role in recommending vaccination.[8]
- Flu vaccination is not recommended in children aged <6 months (since they are not yet able to mount an immune response to the vaccine), which means that vaccination of pregnant woman is very important to protect babies in the first months of life.
- In the 2017-18 season in the United States, it was estimated that the vaccine prevented 7 million illnesses, 109,000 hospitalizations, and 8,000 flu-related deaths.[9]
- The evidence suggests that if a person is vaccinated against the flu and still becomes infected, the disease will be less serious than if they had not been vaccinated (that is, it will prevent complications, hospitalization, or even death).[3] ■



[3] Harrisson P. 5 Persisting Myths About Flu and the Flu Vaccine. [Internet]. Medscape Public Health. 2019. Available from: https://www.medscape.com/viewarticle/907804#vp_3

[4] Arriola C, Garg S, Anderson E et al. Influenza vaccination modifies disease severity among community-dwelling adults hospitalized with influenza. Clin Infect Dis. 2017; 65:1289–97.

[5] Sotomayor V, Fasce RA, Vergara N, De la Fuente F, Loayza S, Palekar R. Estimating the burden of influenza-associated hospitalizations and deaths in Chile during 2012-2014. Influ Other Respi Viruses. 2018; 12:138–45.

[6] Infrequently used in Latin American and Caribbean countries.

[7] US Centers for Disease Control and Prevention. Vaccine Effectiveness - How Well Does the Flu Vaccine Work? [Internet]. 2018. Available from: https://www.cdc.gov/flu/about/qa/vaccineeffect.htm

[8] Ropero-Álvarez AM, El Omeiri N, Kurtis HJ, Danovaro-Holliday MC, Ruiz-Matus C. Influenza vaccination in the Americas: Progress and challenges after the 2009 A(H1N1) influenza pandemic. Hum Vaccines Immunother. 2016;12(8):2206–14.

[9] US Centers for Disease Control and Prevention. 2017-2018 Estimated Influenza Illnesses, Medical visits, and Hospitalizations Averted by Vaccination in the United States [Internet]. 2019. Available from: https://www.cdc.gov/flu/about/burden-averted/averted-estimates.htm

School Health Activities in Argentina to Maintain Measles Elimination

During October and November 2018, Buenos Aires carried out a national measles, mumps, and rubella vaccination campaign for children aged 13 months to 4 years, with the objective of maintaining measles, rubella, and congenital rubella syndrome elimination in Argentina.

The city of Buenos Aires is one of the country's 24 jurisdictions, which, in turn, has 12 program areas. The goal of the campaign in Buenos Aires was to vaccinate 159,164 children.

The Piñero Hospital program area is one of the largest and most vulnerable in the entire city (covering one fifth of the city's total area), with a population of approximately 330,000 people, distributed over 35 square kilometers. It includes settlements and towns with a wide range of conditions and needs. The problems in this area are complex, making it necessary to form solid links among the different teams in the area.

This program area is made up of 12 health centers, the Division of Health Promotion and Protection, the Program for City of Buenos Aires Coverage, and the School Health Program (established by Decree No. 3362 in 1989), and is responsible for 132 public schools, 71 private schools, and 29 preschools.

Given the lack of census information on the population georeferenced to the Piñero Hospital program area, the city's central immunization level calculated the target for the area on the basis of the cohort of persons vaccinated with the first dose of the measles, mumps, and rubella (MMR) vaccine, per year, from 2014 to 2018. The target, established together with the immunization program, was 10% of the city's children (17,848 children) and 95% coverage in the target population.

As part of school health activities to capture the population aged 3 and 4 years, different strategies were determined, such as extramural vaccination both in schools and preschools. For this campaign, the area team chose 48 public schools, 28 preschools, and 39 private schools with children in the age group to be vaccinated. The School Health Program's area coordinators planned the different actions to make the campaign as effective as possible; micro-planning was carried out, supervised by the Buenos Aires immunization program. The base hospital and all its health centers had been previously assigned public and private schools and preschools to carry out vaccination activities.

In June 2018, all public and private schools and preschools in the area were asked to provide lists by rooms with the full name, national identity document (DNI), and birthdate of every student, in order to have a registry of the entire population and a situation assessment for the activities.

Meetings were held with health center managers where the schools were located; with pediatricians and nurses from all the health services, who were given clear guidelines to follow; and with school authorities, in order to explain the objectives and scope of the campaign to them and request their collaboration, since the responsibility falls equally on the health and education teams.

During the campaign, weekly progress of doses administered was monitored according to simple years of age and health service, both at the local level and at headquarters. This monitoring enabled specific progress to be made in the area.

In addition, school health authorities conducted specific monitoring that included doses administered in schools and preschools, in order to determine whether they needed to be revisited to find unvaccinated children.

To streamline this task, the School Health Program designed a consolidated area spreadsheet, which included, among other things, information on: identification of the school, address, telephone number, population to be vaccinated, vaccination by the area program, vaccination by another health service, lack of permission, total number vaccinated, percentage of vaccination coverage, and number of students remaining to be vaccinated. The spreadsheet was updated weekly to reflect changes in the information.

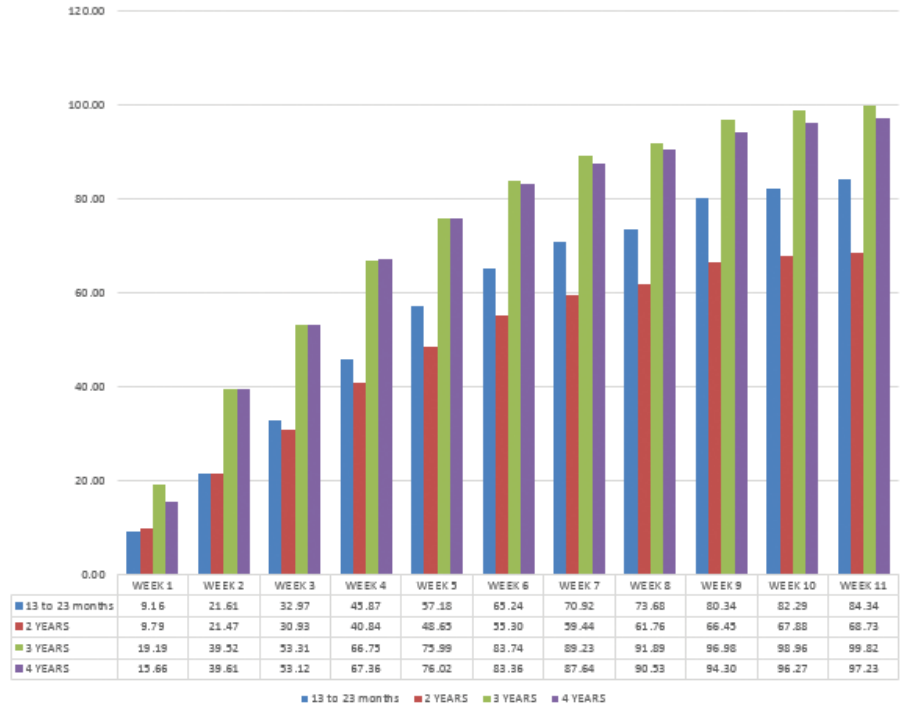
The School Health Program not only conducted age-group progress monitoring, it also used a list of names for each school, organized by health service, that identified those who still needed to be vaccinated, using their full name and the school they attended.

Identifying unvaccinated children, as well as the reasons for not being vaccinated, made it possible to develop new strategies to optimize vaccination activities to reach the target. These included prioritizing vaccination during arrival time at the school, when parents would be present, confidential referrals to health facilities, etc.

Both the Health Promotion and Protection service and School Health Program took it as a challenge to learn what barriers there were to people's access and to locate the missing percentage to meet the established coverage target by monitoring indicators, supervision, and evaluation and analysis of information.

Knowing the actual coverage of the program area is very difficult since it does not have an up-to-date population census; accurate information from the schools is easier to obtain, since they have previously defined populations.

COVERAGE, BY AGE, FOR MMR DOSES ADMINISTERED IN THE PIÑERO HOSPITAL PROGRAM AREA, FROM 01 OCTOBER TO 14 DECEMBER 2018



	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11
13 to 23 months	9.16	21.61	32.97	45.87	57.18	65.24	70.92	73.68	80.34	82.29	84.34
2 YEARS	9.79	21.47	30.93	40.84	48.65	55.30	59.44	61.76	66.45	67.88	68.73
3 YEARS	19.19	39.52	53.31	66.75	75.99	83.74	89.23	91.89	96.98	98.96	99.82
4 YEARS	15.66	39.61	53.12	67.36	76.02	83.36	87.64	90.53	94.30	96.27	97.23

Source: Piñero Hospital Program Area

ARGENTINA continued on page 6

ARGENTINA continued from page 5

School-based activities. Credit: Patricia Mancini, School Health, Health Promotion and Protection, Program Area, Parmenio Piñero Acute Care General Hospital, Buenos Aires, Argentina.

School-based activities. Credit: Patricia Mancini, School Health, Health Promotion and Protection, Program Area, Parmenio Piñero Acute Care General Hospital, Buenos Aires, Argentina.

School-based activities. Credit: Patricia Mancini, School Health, Health Promotion and Protection, Program Area, Parmenio Piñero Acute Care General Hospital, Buenos Aires, Argentina.

To reach the captive population in the schools, most of the vaccination was done in the field, according to a schedule with days and times previously set with the schools, allowing the immunization team access to the schools.

In some private schools, vaccination was done on-site; in the rest, vaccination certificates were reviewed to effectively monitor fulfillment of vaccination compliance. School health team pediatricians continually monitored the student lists in each school, engaging in intense intersectoral work.

Results

By the end of the campaign, the Piñero program area had vaccinated the target population. The extramural strategy in the schools represented 37% of vaccination coverage for the Piñero Hospital program area.

Evidence of progress with the weekly target is that the groups aged 3 and 4 years attained 99% and 97% coverage, respectively, while the groups aged 1 and 2 years that did not have this type of intervention attained 84% and 68%, respectively. At the end of the campaign, the School Health team used the rapid vaccination monitoring strategy to find unvaccinated children. Fifteen schools were selected, among them four grade schools, five preschools and six kindergartens; 258 children were vaccinated among the 676 identified as unvaccinated by rapid vaccination monitoring. Of the 418 who were unvaccinated, 9.2% of parents did not give permission for vaccination, 1.5% were sick, pediatricians did not give a reason for 0.5%, and 17% justified non-vaccination for other causes.

The excellent coordination between members of the Area Program team, the Health Promotion and Protection service, and the Piñero Hospital School Health Program was noteworthy. Coordination was more effective and fluid in this campaign; a personalized network was established among the central team and the different health centers, with participation from different specialists and interdisciplinary teamwork, one of the most important factors to obtain the end results.

Piñero Hospital and Immunization Program work team. Credit: Patricia Mancini, School Health, Health Promotion and Protection, Program Area, Parmenio Piñero Acute Care General Hospital, Buenos Aires, Argentina.

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Map prepared by the Piñero Hospital program area in Buenos Aires, Argentina
Available at: http://goo.gl/maps/FGf7JLrcogm

Table 1. Prices for Vaccines Purchased through the PAHO Revolving Fund, 2019 (prices in US$)

VACCINE		DOSES PER VIAL	AVERAGE COST PER DOSE
BCG		10	$0.2200
Bivalent Oral Polio (bOPV)		10	$0.1700
		20	$0.1292
Cholera		1	$1.7000
DPT		10	$0.1757
DT	Pediatric	10	$0.1600
DTaP Triple Acellular	Pediatric	1	$15.0000
DTaP-IPV	Tetravalent Acellular (pre-filled syringe)	1	$12.0000
DTaP-IPV-Hib	Pentavalent Acellular (pre-filled syringe)	1	$14.8000
DTaP-IPV-Hep B-Hib	Hexavalent Acellular	1	$21.1200
DTP	Hib Lyophilized	1	$2.6500
DTP Hepatitis B Hib Pentavalent	Líquid	1	$1.0905
Hepatitis A	Pediatric	1	$8.1420
	Adult (vial and pre-filled syringe)	1	$13.2779
Hepatitis B (Recombinant)	Adult	10	$0.24005
	Adult	1	$0.3264
	Pediatric	1	$0.2165
Hib	Lyophilized	1	$2.0500
Inactivated Polio (IPV)		1	$5.5000
		5	$3.1000
Measles-Rubella		1	$2.4800
		10	$0.6560
Measles/Mumps (Jeryl-Lynn Strain)/Rubella		1	$5.5900
Measles/Mumps (Zagreb Strain)/Rubella		1	$2.7500
		5	$1.4300
Meningococcal ACYW135		1	$20.3000
Pneumococcal Conjugated Pediatric	10-valent (PCV-10)	1	$12.8500
	13-valent (PCV-13)	1	$14.5000
Pneumococcal Unconjugated	3-valent (PCV-13)	1	$8.3000
Rabies Human Use (Vero Cells)		1	$13.0000

VACCINE		DOSES PER VIAL	AVERAGE COST PER DOSE
Rotavirus, Liquid	2-dose immunization schedule	1	$6.5000
Seasonal Influenza Trivalent Southern Hemisphere 2019	Adult Korean origin	1	$3.2900
	Adult Korean origin	10	$2.1900
	Adult French origin	10	$2.6500
	Adult Pediatric origin	20	$1.0950
	Adult Pediatric origin	20	$1.3250
Seasonal Influenza Quadrivalent Southern Hemisphere 2019	Adult Korean origin	10	$4.4000
	Adult Korean origin	1	$5.4000
	Adult French origin	10	$5.1400
Td	Adult	10	$0.0963
Tdap Triple Acellular	Adolescent/adult	1	$12.7180
Typhoid Polysaccharide		20	$10.0000
Varicella		1	$16.5894
Yellow Fever		10	$1.4300

2019 Vaccine Prices Amendment I

Member States will be billed according to these prices, unless otherwise stipulated in country agreements. PAHO invoices will include the cost of the vaccine, a 4.25% service charge (3% contribution to the RF capital account and 1.25% PAHO fee, applicable only to the cost of the biological product) and actual charges for packing, freight and insurance.

PAHO/WHO Representatives are encouraged to issue proforma invoices based on the "FCA" average prices (indicated in the price list). For estimating the cost of packaging, insurance and freight, use 15% of the value of the biological products for budgetary purposes. This is due, in part, to the origin of the product. The actual cost of these services may vary and will be reflected in the PAHO invoice, which is issued approximately 30 days after the order has been delivered. Delivery lead time is approximately 60 days after the requisition is received by PAHO's Procurement and Supply Management Department (PRO).

Please continue to work closely with the Revolving Fund for Vaccine Procurement in updating quarterly vaccine requirements from Member States. **The accuracy and availability of this information is critical to PAHO's work with suppliers to ensure the timely manufacturing and availability of the products.**

Table 2. Prices for Syringes Purchased through the PAHO Revolving Fund, 2019 (prices in US$)

DISPOSABLE SYRINGE		
SIZE	PACKED PER CASE	PRICE PER UNIT*
1cc 22G x 1 1/2"	2400	$0.0232
	2000	$0.0311
	1400	$0.0290
1cc 23G x 1"	3200	$0.0208
	2000	$0.0245
	1400	$0.0290
3cc 23G x 1"**	1800	$0.3300
	1800	$0.0311
	2400	$0.0232
5cc 22G x 1 1/2"**	1800	$0.0330
	1800	$0.0255
	1200	$0.0235

AUTO-DISABLE SYRINGES		
SIZE	PACKED PER CASE	PRICE PER UNIT*
0.5cc 25G x 5/8"**	3000	$0.0380
	3000	$0.0390
	3000	$0.0282
0.5CC 23G X 1"**	3000	$0.0299
	3000	$0.0338
	3000	$0.0282
	4000	$0.0300
0.5cc 22G x 1 1/2"**	3000	$0.0480
	3000	$0.0656
0.1cc 27G x 3/8"**	3000	$0.0380
	3000	$0.0390
0.05CC 26G X 3/8"	3000	$0.0380

*** Prices FCA (Free Carrier) for each syringe.**
**** If the amount and size of syringes are the same but have different prices, this is generally due to different suppliers.**
Source: www.paho.org/revolvingfund

2019 Syringe Prices Amendment I

Member States will be billed according to these prices. PAHO invoices will include the cost of the syringes, a 4.25% service charge (applicable only to the cost of the syringes), and actual charges for packing, freight and insurance.

PAHO/WHO Representatives are encouraged to issue proforma invoices based on the "FCA" prices. For estimating the cost of packing, insurance and freight, use 25% of the value of the syringes for ocean shipments and use 110% of the value of the syringes for air shipments. This is due, in part, to the origin of the product, the weight and the shipping mode — air or sea. The actual cost of these services may vary, and will be reflected in the PAHO invoice, which is issued approximately 30 days after the order has been delivered. Delivery lead time is approximately 30 days by air and 100 days by ocean after the requisition has been received by PAHO's Procurement and Supply Management Department (PRO).

Please continue to work closely with the Revolving Fund for Vaccine Procurement in updating quarterly syringes requirements from Member States. **The accuracy and availability of this information is critical to PRO's work with suppliers to ensure the timely manufacturing and availability of syringes.** ■

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What I Have Learned about Vaccination against Seasonal Influenza and Pandemic Preparedness...

by Alba Maria Ropero A., PAHO/WHO regional advisor on immunization against influenza, hepatitis, and yellow fever, and maternal immunization

We know that seasonal influenza causes deaths and illness every year around the world. Flu pandemics have a huge impact on health and on society in general and the world needs to be prepared for a severe pandemic. But how can we prepare for something if we don't know when it will happen?

Flu vaccines are the best tool to prevent seasonal influenza and to respond to a pandemic. This type of vaccination poses a great challenge for countries, since it must be done annually in different population groups that are not included in the traditional immunization programs for children: people with chronic diseases, older adults, pregnant women, and health workers, among others.

In 2009, when the Americas became the first world region to face the H1N1 influenza pandemic, two ideas were confirmed: first, pandemics are largely unavoidable, and second, vaccinating against seasonal flu helps countries prepare for a pandemic.

This became very clear when, during that pandemic, we saw that the countries that had immunization programs against seasonal flu were able to vaccinate against influenza A (H1N1) more quickly and effectively. Why? Because these countries already had the infrastructure and installed capacity to reach groups not traditionally included in immunization programs.

It was not by chance that these countries were prepared. Six years earlier, the World Health Assembly (through resolution WHA56.19) had recommended use of the flu vaccine, not only to reduce the annual burden of disease, but also to help ensure that countries would be better prepared to respond to a future flu pandemic. The proposal did not fall on deaf ears and their decision to rely on the seasonal flu vaccine bore fruit when responding to the pandemic.

Alba Maria Ropero.

Since the 2009 pandemic, there has been a considerable increase in the use of the flu vaccine in the Americas, in comparison with other regions of the WHO. Countries have continued their efforts to maintain or increase vaccination in risk groups, especially pregnant women.

Another important factor is that PAHO's Technical Advisory Group (TAG) on Vaccine-preventable Diseases has been recommending vaccination against influenza since 2004, while strengthened national immunization technical advisory groups (NITAGs) have been advising ministries of health on the introduction of the vaccine. Enhanced epidemiological surveillance of influenza in the Region—through the development of the SARINET network and studies on the burden of disease in many countries—has also contributed to efforts to strengthen countries' response capacity. The development of REVELAC-i, a network that evaluates the effectiveness of the flu vaccine in Latin America and the Caribbean, has also been a very important step.

Access to flu vaccines is another key factor. The PAHO Revolving Fund has played an important role in facilitating access to routine influenza vaccination in the Region, through specific annual procurement of trivalent and quadrivalent vaccines (with northern and southern hemisphere compositions). During the 2009 pandemic, the Revolving Fund negotiated procurement on behalf of countries, especially those that did not produce vaccines, giving them earlier access than in other regions.

Despite this progress, we recognize significant and persistent challenges to improving the use of this vaccine. We need to continue expanding vaccination coverage in certain risk groups, including people with chronic diseases, older adults, and health workers themselves. We have identified difficult access and lack of trust in vaccines as reasons that explain why some groups are reluctant to be vaccinated. It is necessary to develop culturally appropriate communication strategies aimed at specific populations in order to begin turning this situation around. We also need to provide more continuous training to health workers, who continue to be one of the most reliable resources for encouraging people to make the decision to be vaccinated.

In conclusion, we have learned from experience that strong and sustainable programs for vaccination against seasonal influenza are essential to mitigating a future pandemic. The ability to identify which risk groups to vaccinate and how to address issues of access to the seasonal vaccine, regulatory aspects, distribution, administration, monitoring, and performance evaluation will be essential for rapid vaccination to prevent illness and deaths. In the midst of a pandemic we will not have time to devise new systems of vaccine distribution, administration, and evaluation, making it very important to have these mechanisms in place and tested in advance. These capacities should be tested through simulations and other exercises that will enable countries to fine-tune their pandemic preparedness plans. Seasonal vaccination plays a key role in these plans. ■

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