

# THIRTY-FIFTH MEETING OF MANAGERS OF THE CARIBBEAN EXPANDED PROGRAM ON IMMUNIZATION

Virtual Meeting  
3–5 November 2021

FINAL REPORT

Thirty-fifth Meeting of Managers of the Caribbean Expanded Program on Immunization . Final Report

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## 1. INTRODUCTION

The 35th Meeting of Managers of the Caribbean Expanded Program on Immunization (EPI) was held virtually from 3–5 November 2021. The meeting convened 71 participants from 28 countries and territories of the English-, Dutch-, and French-speaking Caribbean. Participants included representatives from the Ministries of Health, the Caribbean Public Health Agency (CARPHA), the Caribbean Community (CARICOM), and the Pan American Health Organization / World Health Organization (PAHO/WHO).

The opening remarks were given by Chairperson Dr. Peter Figueroa, who thanked subregional immunization adviser Dr. Karen Broome and the entire PAHO team for their excellent work in organizing this important meeting. He thanked the country EPI managers for their commitment, dedication, and tremendous work over the past year and a half in response to the COVID-19 pandemic, and he acknowledged and welcomed the Caribbean Immunization Technical Advisory Group (CiTAG) members.

Dr. Cuauhtemoc Ruiz Matus, Unit Chief of the Comprehensive Family Immunization Unit at PAHO Headquarters in Washington, D.C., then noted that the PAHO team always looked forward to this meeting, because of the opportunity to exchange and learn from the experiences of countries in the Caribbean. He reflected that, due to the COVID-19 pandemic, the 2019 Caribbean EPI Managers' Meeting had not taken place and, for that same reason, this year's meeting was virtual. He expressed hope that next year's meeting would be in person. He applauded the EPI managers for their hard work to maintain immunization programs during the pandemic, despite the challenges faced at work, in their country, as well as at home with their families.

After going over the objectives of the meeting, Dr. Ruiz ended by acknowledging that while all immunizations programs and meetings were inevitably focusing on the COVID-19 pandemic, he urged the group to also focus on other vaccine-preventable diseases (VPDs), to prevent the risk of outbreaks in the future.

## 2. OBJECTIVES OF THE MEETING

### 2.1 Overall objective:

To analyze achievements for 2020, review the challenges of 2020 and 2021 in the context of the COVID-19 pandemic, and plan activities for 2022, while sharing country experiences on the immunization program.

### 2.2 Specific objectives:

- To review the status of the EPI program in the Region of the Americas and the Caribbean and to identify areas that require strengthening;
- To discuss the status in countries in the surveillance and management of VPDs and areas that require strengthening;
- To provide an update on immunization in the context of COVID-19 and review the status and needs of country EPI programs following outbreak control activities associated with COVID-19;
- To update information on selective topics of common interest to countries in relation to immunization, service delivery, and surveillance of VPDs;
- To share country experiences in managing the COVID-19 pandemic.

### 3. UNIVERSAL VACCINATION COVERAGE

#### 3.1 Caribbean Immunization Technical Advisory Group Report

The CiTAG was appointed in 2017 by the Council for Human and Social Development (COHSOD) of CARICOM to provide technical guidance to Caribbean countries on immunization. On 26–28 February 2018, it held its inaugural meeting during the 33rd Caribbean EPI Managers' Meeting in Trinidad and Tobago.

During the inaugural meeting, the CiTAG called for countries to strengthen their legal framework for childhood vaccination by having a legislative framework for vaccination that required routine childhood and other critical vaccines and ring-fenced the budget for vaccines and other vital components of the EPI program, including surveillance and the laboratory. While confidence in childhood vaccination was high, the CiTAG urged countries not to take it for granted, particularly as there were uninformed voices in the social media that were questioning the proven value of vaccines. The CiTAG also noted that an effective legislative framework could facilitate timely payment for vaccines and reduce stockouts due to late payments.

Since its inception, the CiTAG has met several times, it has made reports to the Caribbean Ministers of Health and Chief Medical Officers and has submitted a written brief to the COHSOD recommending that vaccine legislation be strengthened. All the CiTAG members are active in the response to the COVID-19 pandemic.

The CiTAG members include Dr. Peter Figueroa as CiTAG Chair, Dr. Philippe Duclos, Dr. Elizabeth Ferdinand, Dr. Tracy Evans Gilbert, Dr. Gabriel Gonzales Escobar, Dr. Beryl Irons, and Secretariat Dr. Karen Lewis-Bell of PAHO and Dr. Karen Gordon-Boyle of CARICOM.

#### 3.2 Summary of Recommendations of July 2021 TAG Meeting

The XXVI Meeting of PAHO's Technical Advisory Group (TAG) on Vaccine-Preventable Diseases was held virtually on 14–16 July 2021. The objectives of that meeting were to develop recommendations to address current and future challenges of immunization programs in the Americas. Dr. Figueroa highlighted the following recommendations.

**The TAG endorsed the recent policy approved by PAHO's 168th session of the Executive Committee:** Reinvigorating Immunization as a Public Good for Universal Health. Governments must take full responsibility for their immunization programs as a priority of immense value, invest the necessary resources in all components of the program, ensure an appropriate legal framework to sustain the program, and promote full vaccination across the life course.

**Digital health in immunization:** Countries should develop new digital tools to benefit EPI and other health programs; invest the necessary resources to ensure adequate infrastructure and Internet connectivity; and promote digital literacy and training among all health workers.

**Measles:** Governments should take urgent corrective actions to ensure 95% coverage with two doses of the MMR vaccine among children younger than two years, to meet the standards of high-performing surveillance, and to conduct periodic follow-up and targeted campaigns for vulnerable populations and cohorts of older age groups. Countries are also urged to ensure that the Region achieves and sustains once again WHO's target of eliminating measles and rubella.

**COVID-19:** As of 18 October 2021, COVID-19 vaccination coverages show Cuba leading in the Caribbean with 60% of its population fully vaccinated, followed by the Dominican Republic (47%), Trinidad and Tobago (41%), and Barbados (40%). Haiti's vaccination coverage is the lowest, with 0.2% of its population fully vaccinated. Countries are urged: to further strengthen planning and preparation, train their health workforce, expand immunization staff where needed, install cold chain equipment, review, and implement local micro plans; to implement the Strategic Advisory

Group of Experts (SAGE) roadmap for prioritization of COVID-19 vaccines and achieve high vaccination coverage among health and front-line workers, older persons, and other high-risk groups before administering doses to adolescents (ages 12–15). It is essential to deliver the first dose of vaccine to as many people as possible to reduce severe COVID-19 and mortality. To be fully protected, persons should complete the 2-dose series with the same vaccine. Last, countries should invest in designing and implementing vaccine effectiveness studies to collect information to guide COVID-19 vaccine use in the Region.

**Communications:** Governments should actively promote COVID-19 vaccines among their populations and provide timely and accurate information on the vaccines' safety, effectiveness, and quality. Countries should organize coordinated communication campaigns and social engagement events to promote vaccination against COVID-19.

**Events supposedly attributable to vaccines or immunization (ESAVIs):** Countries are urged to establish or strengthen an electronic surveillance system for adverse ESAVIs. All serious adverse events must be reported and investigated in a timely manner to identify associated risk factors and to estimate rates of their occurrence. Staff must be trained to recognize the symptoms and signs of thrombosis with thrombocytopenia syndrome and other serious adverse events.

**Pneumococcal:** Countries should prioritize pneumococcal vaccination for children younger than 5 years rather than older adults, and EPI staff can coadminister COVID-19 and pneumococcal vaccines (give them in different arms); otherwise, ensure an interval of 14 days between the two vaccines.

**Polio:** Countries are urged to achieve 95% coverage with Polio3, and governments should invest resources toward this end. Countries that have already introduced two doses of inactivated poliovirus (IPV) may consider adopting this schedule or consider an interval of 4 months between IPV1 and IPV2. Countries should continue to use bOPV and should not switch to an IPV-only schedule at this time. sIPV and wIPV are interchangeable, and sIPV is not recommended as a fractional dose. If a stool sample cannot be collected from an acute flaccid paralysis (AFP) case within 14 days of onset of paralysis, or if a stool sample arrives at the laboratory in poor condition, collect one stool sample from three contacts (family/household contacts, neighbors, playmates [all < 5 years]). Also, countries should ensure the 60-day follow-up visit to assess the presence of residual paralysis. This is done in only 20% of cases.

The full report of the 2021 TAG meeting is available from:  
[https://iris.paho.org/bitstream/handle/10665.2/54833/PAHOFPLIMCOVID-19210038\\_eng.pdf?sequence=1&isAllowed=y](https://iris.paho.org/bitstream/handle/10665.2/54833/PAHOFPLIMCOVID-19210038_eng.pdf?sequence=1&isAllowed=y)

### 3.3 Update on EPI in the Americas – 2020

The world was experiencing a stall in routine immunization coverage even before the start of the COVID-19 pandemic. WHO reports that, in 2019, only 85% of the world's children received the third dose of the diphtheria, tetanus, and pertussis (DTP) vaccine, leaving 19.7 million children vulnerable to VPDs. Almost half of those children live in Africa.

The Region of the Americas has been reporting a steady decline in vaccination coverage since 2010. The Region's DTP3 coverage rate dropped from 94 to 84% between 2010 and 2020. The decline in coverage occurred in most countries of the Region, leading to a larger population of individuals susceptible to VPDs. There are multiple reasons for the decline, including natural disasters, displacements, progressive urbanization, the political context, and growing inequities in access to health care. The COVID-19 pandemic exacerbated existing trends and forced governments to redirect scarce resources to emergency response operations. Access to healthcare services remains limited because of the demands of the pandemic response. As a result, between January 2019 and January 2020, DTP3 and MMR coverage declined by 33% and

24%, respectively. The COVID-19 pandemic has also affected VPD surveillance systems. Reductions in the timeliness and quality of epidemiologic and laboratory surveillance contributed to outbreaks of measles and rubella, pertussis, diphtheria, yellow fever, and other VPDs. The report from the United Nations Economic Commission for the Latin America and Caribbean projects a 9.1% decline in the regional gross domestic product for 2021, which will greatly impact funding for the healthcare sector.

Despite these challenges, many national immunization programs have been able to adapt and continue offering routine immunization and surveillance services. Many countries have implemented mass vaccination campaigns against measles/rubella, influenza, yellow fever, and polio to reduce the number of unvaccinated children and avoid VPD outbreaks. However, although immunization coverage levels had recovered to pre-COVID-19 pandemic levels by around August 2020, follow-ups of missed cohorts have so far been slow and incomplete.

The 2016-2020 Regional Immunization Action Plan (RIAP) lists 29 indicators; 15 have been attained, 9 are ongoing, and 5 are off track. PAHO's Comprehensive Family Immunization Unit (IM) has been working closely with PAHO country offices, the countries' National Immunization Technical Advisory Groups, Ministries of Health, and PAHO's Revolving Fund to implement the actions delineated in the RIAP. Below, this report examines the status of each indicator, by objective:

1. Sustain achievements: While the Region has remained polio-free and work continues to communicate the value of vaccines to individuals and communities, the Region has not regained its elimination status for measles and rubella. Also, the Region has not maintained its achievements in VPD control.
2. Address the unfinished agenda: The Region has eliminated neonatal tetanus and increased equitable access to immunization services. Nonetheless, vaccination coverage rates lag behind the established targets. Only 9 of the 35 countries in the Region achieved the 95% vaccination coverage target for DTP3, while 11 report coverage rates below 80%. Also, between 2019 and 2020, 8 countries reported 1–5% decreases in the DTP3 coverage rate, and 19 reported decreases greater than 5%. In nine countries, the DTP1-DTP3 dropout rate is higher than 10%, and reaches 24% in Panama and 26% in Venezuela (Bolivarian Republic of). In 2020, the number of unvaccinated children in Latin American and Caribbean countries stood at almost 2.2 million.
3. Tackle new challenges: During this five-year period, multiple vaccines (i.e., rotavirus, pneumococcus, human papillomavirus) were introduced in a sustainable manner. Efforts to base decision-making on high-quality data and impact assessments are ongoing. The working group responsible for the resolution Defeating Meningitis by 2030 is working on a landscape analysis of the burden of disease in the Region; its goal is to prioritize countries for implementing the roadmap.
4. Strengthen health services: The Region is on track to achieve expected results proposed by the Sustainable Development Goals (SDGs) for reductions in infant and maternal mortality. Also, supplies are available through national resources on a sustainable basis. However, work continues to strengthen immunization services as part of comprehensive, well-run health services. Specifically, additional effort is needed to ensure that: a) all people have permanent access to vaccines, starting with the most disadvantaged; b) countries implement interprogrammatic coordination when submitting their demands to PAHO's Revolving Fund; c) cold-chain and supply logistics are well managed; and d) vaccine safety is paramount at all levels of the immunization program.

Moving forward, the Region of the Americas plans to implement its strategic priorities to support and maintain its national immunization programs. The goals are to: a) reduce mortality and morbidity from VPDs for everyone throughout the life course; b) leave no one behind by increasing



equitable access and the use of new and existing vaccines; and c) ensure good health and well-being for everyone by strengthening immunization in primary health care and by contributing to universal health coverage and sustainable development.

Also, given the ongoing weak performance of immunization programs and the COVID-19 pandemic, Member States endorsed the policy Reinforcing Immunization as a Public Good for Universal Health during the 168th session of PAHO's Executive Committee (21–25 June 2021). This policy includes six strategic lines of action; they are embedded in the new Regional Immunization Action Plan 2021–2030 and aligned with the WHO's 2030:

1. Strengthen governance, leadership, and financing of immunization programs
2. Enhance monitoring of vaccine coverage and surveillance, incorporating digital intelligence strategies into routine analysis;
3. Strengthen the integration of immunization programs into the primary healthcare system toward universal health;
4. Develop innovative and strategic communication to build social awareness and trust in vaccines and increase access to services;
5. Strengthen human resource capacities for immunization programs;
6. Use scientific evidence to guide decision-making and program implementation.

### **3.4 Overview of EPI in the Caribbean – 2020**

The Caribbean has led the world with respect to the elimination of childhood diseases that are preventable by vaccination. The subregion was the first to eliminate poliomyelitis, measles, rubella, congenital rubella syndrome, diphtheria, and neonatal tetanus through vaccination, and to sustain the elimination of these communicable diseases for decades. The countries of the subregion have been polio-free since 1982, measles-free since 1991, diphtheria-free since 1996, and rubella-free since 2002.

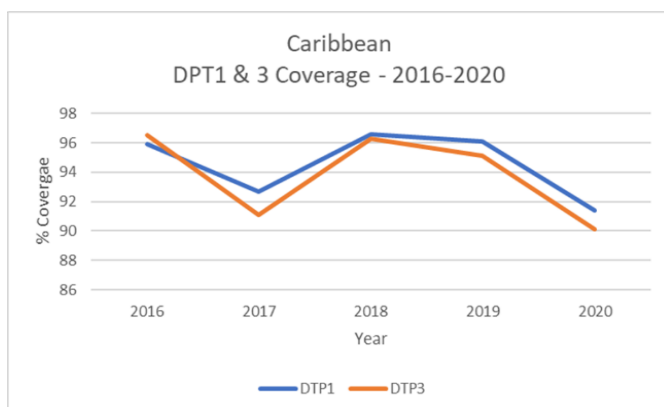
The success of the EPI was due to the commitment of the EPI Managers and the National Immunization Program (NIP) staff, unwavering political and technical support, and a recognition by the public that vaccines prevent disease and death. The provision of technical support and guidance by PAHO to strengthen NIPs along with strategic funding has also enabled countries in the Caribbean to maintain high childhood immunization coverage and in the process, achieve historic immunization goals in the Region.

However, in recent years, the traditionally high immunization coverage in the Caribbean has declined (Figures 1 and 2), with too many districts reporting coverage of childhood vaccines below 80% (target of 95% coverage in each district).

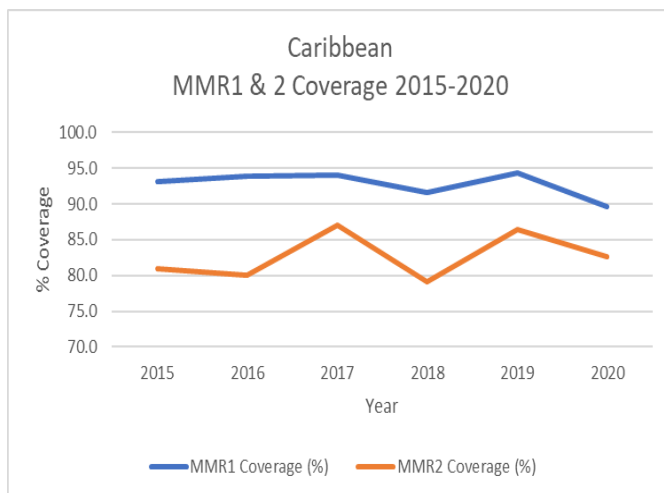
The decline in immunization coverage has been exacerbated by the COVID-19 pandemic. The use of EPI program resources (human, equipment, and financial) to manage and control COVID-19 cases and to deploy and administer COVID-19 vaccines has severely compromised some of the NIPs.

The declining childhood immunization coverage, along with increasing numbers of visitors to the Caribbean from across the globe, runs the risk of the reintroduction of these previously eliminated childhood diseases, especially measles, which is highly infectious and associated with serious illness and death.

**Figure 1. Coverage of first and third doses on diphtheria, tetanus, and pertussis vaccines, 2016–2020**



**Figure 2. Coverage of first and second doses on measles, mumps, and rubella vaccines, 2016–2020**



## 4. REVIEW OF VPD SURVEILLANCE IN THE CARIBBEAN

### 4.1 Update on VPD Surveillance in the Americas – 2020

#### Polio Surveillance

After the certification of the global eradication of wild poliovirus type 2 and 3 (WPV2 and WPV3) in 2015 and 2019, respectively, the declaration in 2020 of Africa as free of wild poliovirus (WPV) gave new hope to reach the global eradication. In 2020, there was a reduction in the number of confirmed cases due to WPV1 in Afghanistan and Pakistan. Nevertheless, the expansion of circulation of vaccine-derived poliovirus type 2 (cVDPV2) into previously polio-free areas,<sup>1</sup> the increase in the number of cVDPV2 outbreaks mainly in Africa but also in Afghanistan and

<sup>1</sup> World Health Organization. Meeting of the Strategic Advisory Group of Experts on Immunization, October 2020 – conclusions and recommendations. Weekly Epidemiological Record, 2020;95(48):585– 607. Available from: <https://apps.who.int/iris/handle/10665/337109>

Pakistan, as well as a new emergency of cVDPV1 in Madagascar, negatively impacted the program.

During the first semester of 2021, there were no confirmed polio cases due to WPV1, and there was a reduction in the number of confirmed cases due to cVDPV2; however, environmental surveillance continues to identify positive isolates in several sites.

Since 2019, a downward regional trend has been observed in the fulfillment of AFP surveillance indicators: notification rate, investigation within 48 hours, and adequate sampling. Only four countries (Costa Rica, Nicaragua, Mexico, and Paraguay) have achieved the above-mentioned indicators. Two (Bolivia [Plurinational State of] and Haiti) and six countries were identified as very high and high risk, respectively, during a risk assessment conducted by the Regional Certification Commission in 2020. The assessment considered the following components: immunization coverage, surveillance, health determinants, containment status, and outbreak response preparedness

Since 2016, the Ministry of Health of Haiti with the support of the United States Centers for Disease Control and Prevention (CDC) and PAHO, have implemented polio environmental surveillance to supplement AFP surveillance. Monthly collection of sewage in 10 sites located in four cities has been maintained. By July 2021, no VDPV or WPV1 had been detected in Haiti through this surveillance.

#### **Rubella and Measles Surveillance**

Reporting of confirmed rubella and measles cases has declined globally, probably due to the COVID-19 pandemic. However, these viruses are still circulating in several countries. In 2020, an import-rubella case was reported by the United States of America. The Region of the Americas keeps its status of rubella-free region.

Fewer suspected cases reported in 2020 (as less countries achieved the notification rate) was translated in fewer specimens collected (serum, nasal/throat swab, and urine) and tested.

A total of 8,734 measles confirmed cases were reported in 2020 by nine countries of the Region. As of epidemiological week 42 of 2021, Brazil continues with endemic measles virus circulation (618 cases) mainly in the northern states of Amapa and Para. The United States has reported 45 confirmed measles cases associated with importation. French Guiana has reported 3 measles confirmed cases. D8 genotype has been associated with the Brazil outbreak and B3 genotype with multiple importations reported by the United States.

#### **Diphtheria Surveillance**

In 2020, 81 confirmed diphtheria cases including 20 deaths were reported by six countries (Brazil 2, Chile 1, Dominican Republic 3, Haiti 66, Peru 4, and Venezuela [Bolivarian Republic of] 5) of the Region of Americas.

In 2021, provisional data confirmed 30 diphtheria cases and 13 deaths in four countries (Brazil 1, Colombia 1, Dominican Republic 16, and Haiti 12). In the Dominican Republic, 50% of the confirmed cases occurred in children between 1 and 4 years old, and 62.5% of them were confirmed in males. Vaccination status is incomplete among all cases.

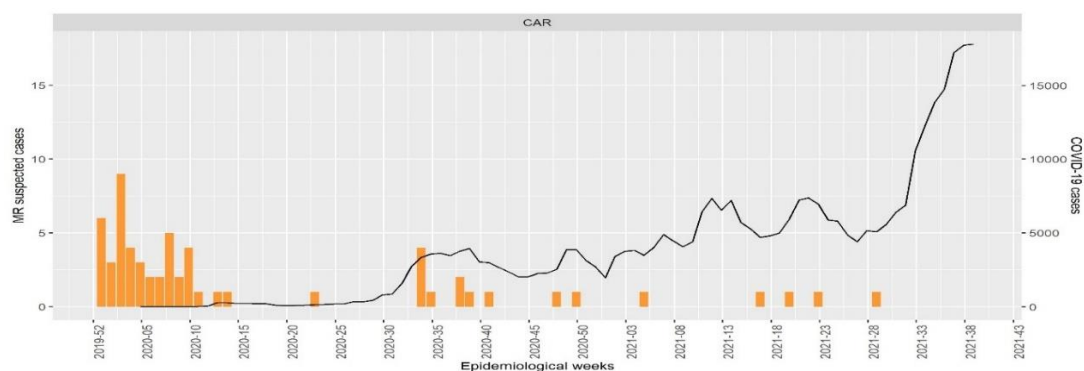
#### **4.2 Update on VPD Surveillance in the Caribbean – 2020**

The surveillance of suspected measles and rubella and polio in the Caribbean continued to decline in 2020, with only 5 of 22 countries reporting rash and fever and AFP cases for 2020. Both the rash and fever target of 2/100,000 population (Figure 3) and the AFP target of 1/100,000 children under 5 years of age were not met in 2020.

The Caribbean Measles/Rubella Elimination Monitoring and Reverification Commission stated in the Monitoring and Reverification of the Sustainability of Measles, Rubella and Congenital Rubella Syndrome Elimination Report 2016–2020, that it was not satisfied with the vaccination coverage of MMR1 and MMR2 (90% and 83%, respectively) in the Caribbean and the performance of the rash and fever indicators (rash and fever rate – 0.69/100,000), and has called on all Caribbean countries to prioritize the surveillance of rash and fever and implement mop-up and catch-up campaigns to vaccinate children who have missed routine childhood vaccination in previous years and in 2020–2021 due to the challenges associated with the COVID-19 pandemic.

The Subregional Certification Committee stated in the *Annual Report: Documentation of the Polio Eradication Status 2020*, that it was not satisfied with the vaccination coverage of Polio3 (89%) in the Caribbean and the performance of the AFP indicators (AFP rate – 0.22/100,000), and has called on all Caribbean countries to prioritize the surveillance of VPDs and implement mop-up and catch-up campaigns to vaccinate children who have missed routine childhood vaccination in previous years and in 2020–2021 due to the challenges associated with the COVID-19 pandemic.

**Figure 3. Rash and fever surveillance in the context of the COVID-19 pandemic**



management in the context of COVID-19; and the fact that Haiti is the only French-speaking country in the Region.

#### **4.4 Update on PAHO Revolving Fund and Demand Forecasting for 2022**

The PAHO Revolving Fund (RF) for Vaccine Access for the EPI continues to be a pillar for the achievement of regional immunization goals in the Americas. Through the RF, the 41 participant countries and territories in Latin America and the Caribbean access low-priced, quality vaccines for their NIPs. Annual immunization plans, accurate national-level vaccine demand forecasts, and prompt payments to the RF were emphasized as key components to ensure timely supplies.

Meeting participants received an update on: country demand planning and financial status; a vaccine market perspective highlighting vaccines of special concern; what lies ahead with the COVAX Facility as a self-financing country and as an Advance Market Commitment eligible country; and the RF setting up access to additional COVID-19 vaccine complementing COVAX, bilateral arrangements, the African Vaccine Acquisition Trust, and other initiatives.

In 2020, 750 million vaccines were procured through the RF. In 2021, the RF expects to top over a billion dollars in procured value of vaccine for the routine program and the COVID-19 vaccine. This is the first time in the history of the RF that this will occur.

As of 1 November 2021, the COVID-19 shipment included 33 Latin American countries and 64.2 million doses, compared with the 433 million doses globally. Regarding demand performance for 2021, the RF is monitoring performance pertaining to demand, with key items being the need for syringes to address the COVID-19 vaccines supply in the Caribbean.

Vaccines for special attention include yellow fever, measles-containing vaccines, human papillomavirus, influenza, IPV, PCV, and rotavirus.

PAHO's Regional Plan of Action for ensuring sustainable access to COVID-19 vaccines includes a three-pronged approach:

- COVAX commitment of 35 countries with success factors including: 1) producers delivering the committed/contracted vaccines, 2) voicing needs of countries, and 3) operational and financial readiness;
- Donations with success factors including: 1) guiding the resources to the most needed, 2) proactive involvement in planning and operations, 3) technical guidance, and 4) expediting and removing bottlenecks with donors;
- Additional access through the RF with success factors including: 1) Member State commitment, 2) product portfolio approach (customized supplier engagement), and 3) establishing supply agreements with manufacturers.

## **5. SUSTAINING GAINS MADE IN THE CONTEXT OF COVID-19 PANDEMIC**

### **5.1 Global and Regional Epidemiological Situation of COVID-19**

As of 4 November 2021, the world had recorded 250 million COVID-19 cases and over 5 million COVID-19-related deaths, of which 93 million cases and 2.3 million deaths in the Region of the Americas. Globally, an overall decreasing trend in cases has been observed, except for Europe, where cases have increased in recent last weeks. Decoupling between incidence and mortality has been observed as intended and expected. Studies have shown that as vaccination coverage increases, there is a decrease in masking and social distancing. Overall, there are three basic epidemic patterns in terms of COVID-19: one of sustained transmission; one of repeated waves; and one of initial suppression but not sustained.

Several factors determine transmission, including: 1) social and socioeconomic factors, which are difficult to tease out and are not yet fully characterized; 2) seasonal climatic factors, which are an

observation for temperate areas, but without definitive evidence to date; 3) further virus evolution and potential emergence of new variants; 4) changes in population immunity that is originally induced by either natural infection or vaccination; 5) changes in mandates on public health and social measures and their adherence by the population; and 6) an infodemic, which includes mixed messages, misinformation, and/or disinformation.

Regarding the virus evolution and potential emergence of new variants, mutations are an expected feature of all viruses as they evolve. Variants refer to specific combinations of one or more mutations. Some are classified as variants of concern because they are associated with changes of public health significance. Variants of concern may have increased transmissibility or greater virulence or clinical manifestation. To date, there are four variants of concerns, Alpha, Beta, Gamma, and Delta. What is clearly established is that there is an increase in transmissibility and the Delta variant is three times more transmissible than the other variants, and twice as transmissible than the original lineage of SARS-CoV-2. In the Region of the Americas, the Delta variant is now the most dominant variant in all the subregions.

The herd immunity theory is complex in the sense that important assumptions in the herd immunity theory formula include large, well-mixed, and homogenous populations, which may not be the case in many settings especially in small countries where the population is finite. Humoral immunity is the type of immunity that possibly protects people against infection, but this immunity might wane over time. Also, more infectious SARS-CoV-2 variants, such as Delta, require greater levels of population immunity. There is also the issue of vaccine hesitancy, which may make it impossible to reach the necessary coverage. It is not a binary concept between full and no protection at population level – increasing levels of population immunity should limit transmission more and more (while not halting it altogether without other measures).

While the COVID-19 pandemic may end, SARS-CoV-2 transmission is likely to continue for the foreseeable future. There are three possible scenarios in the short to medium terms with regard to the COVID-19 pandemic: 1) a protracted pandemic, considering that new variants keep emerging and some escape immunity (in this case, vaccines would need to be updated regularly); 2) more limited community transmission but periodic epidemics, with severe disease clustering among population groups who are unvaccinated or insufficiently protected through vaccination; and 3) local outbreaks against a backdrop of very low, absent, or silent community transmission, for example, in “closed environments.” These different scenarios will likely occur concurrently across the Region and, for larger countries, even within them.

## **5.2 Review of Coronavirus Laboratory Test Results in the Caribbean**

In 2020, a total of 37,930 SARS-CoV-2 tests were performed for Caribbean Member States, with August having the largest number of samples tested, 7,601. The greatest number of positive cases were recorded in the months of August, September, and October: 925, 1,479, and 1,110 respectively.

In 2021, a total of 45,804 SARS-CoV-2 test were performed for Caribbean Member States, with August having the largest number of samples tested, 5,694. For the months of May, June, July, August, and September, there were over 1,000 positive cases, with September having the highest number to date 3, 094.

All Caribbean Member States have implemented SARS-CoV-2 testing within country. CARPHA has been assisting with testing when there has been a surge in suspected cases in country or reagents have depleted.

The response of the CARPHA Medical Microbiology Laboratory (CMML) to the pandemic includes: working with PAHO on developing CMML laboratory testing capacity; procuring of the appropriate primer/probes and molecular reagents; internal verification of the WHO protocol and

training of staff; and testing implemented on 10 February 2020. All CARPHA Members States were informed.

Testing for all suspected cases is available, and priority was given to persons with travel history and once detected in country testing for contacts, both symptomatic and asymptomatic. Testing then progressed to surveillance testing. At the beginning of the outbreak, results were disseminated to chief medical officers before being reported to the national public health laboratories.

Regarding gene sequencing, in December 2020, a joint project between the University of the West Indies and CARPHA began to determine the different lineages/variants circulating in the Caribbean subregion. On 15 November 2021, CARPHA will begin “whole genome sequencing” to identify the presence of the various COVID-19 (SARS-CoV-2) variants.

**5.3 COVID-19 Vaccination in the Caribbean**

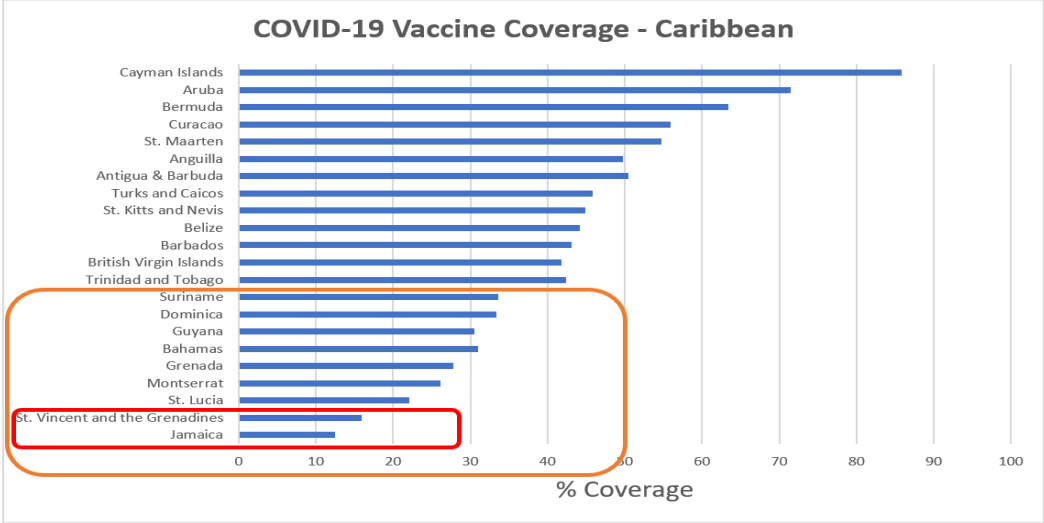
PAHO/WHO continues to work closely with Caribbean countries to ensure their continued readiness for the receipt, deployment, and administration of COVID-19 vaccines. Countries in the Caribbean have accessed and received vaccines through donations, bilateral deals, and the COVAX Facility. This has enabled country vaccination rates that at present, range from 12% to 86% (as of 29 October 2021) in the Caribbean subregion.

Nine of 22 countries/territories in the Caribbean have not yet reached the 40% coverage goal set for the end of 2021, and 2 countries have only managed to vaccinate less than 20% of their population with COVID-19 vaccine (Figure 4).

The Caribbean countries have cited many barriers to COVID-19 vaccination, ranging from vaccine access to vaccine hesitancy. Despite the low coverage in the Caribbean, several countries have reported disposal of thousands of expired COVID-19 vaccine doses due to low vaccine demand in their populations.

The COVID-19 vaccine campaign has also been plagued with healthcare worker burnout and an overwhelming of the NIPs, which has negatively impacted the routine childhood immunization activities.

**Figure 4. COVID-19 vaccination coverage in the Caribbean (as of 29 October 2021)**



## **5.4 Country Reports on COVID-19 Vaccine Implementation – Achievements and Challenges**

### **Jamaica**

Jamaica began planning, microplanning, and establishing its COVID-19 vaccination structure before the arrival of the COVID-19 vaccine. The process was steered by a national coordinating committee and supported by four subcommittees that were established at the national and regional levels. A Vaccine Commission made up of a multisectoral body of persons was established to provide oversight. These committees reported to the executive management of the Minister of Health and Wellness, and its Cabinet. A task force was then established by the Prime Minister to assist in the logistics of delivery of vaccines.

Demand generation and communications were prioritized, as were misinformation management, staff empowerment, message consistency, and constant communication with and monitoring of the media. All staff that were involved in the delivery of the vaccines were trained, and some 60–70% of other staff were trained on looking at the components of vaccine delivery. An assessment of the vaccine cold chain and logistics was also conducted. Collaboration with the private sector was essential to the success of introducing the COVID-19 vaccines.

Challenges with vaccine acquisition included: limited supplies from COVAX; short expiration date; tedious process to transfer between countries; uncertainty of vaccine arrivals; and numerous delays. Challenges with administering processes included: Amber and CommCare glitches; access; overcrowding at vaccination sites; and staffing absenteeism, burnout, and sickness. Other challenges included vaccine hesitancy, misinformation and myths, the media, ESAVIs, vaccine preference, wastage, and waste management.

To date, Jamaica has received 2,319,290 doses of COVID-19 vaccines, the vast majority from AstraZeneca and the rest from Johnson and Johnson and Pfizer, and 50.5% of the target population has been vaccinated, which amounts to 65% of the general population.

### **Dominica**

Between March and July 2021, Dominica reported a total of 218 confirmed cases and no deaths, with 22 March being the date of the first COVID-19 case reported in the country. Most cases were imported, with limited community transmission, and all cases were immediately isolated and treated. Some of the reasons for a good control of the first wave included: a total lockdown of the country; training of all staff on infection control; antigen testing; aggressive contact-tracing team; isolation of all cases and primary contacts; the development of protocols and guidelines for reopening of businesses; and gradual resumption of economic activity, with a full reopening by August 2020. Travel protocols involved uploading of negative polymerase chain reaction (PCR) tests done at a maximum of 3 days before travel, and a mandatory 14-day quarantine. The second wave of COVID-19 cases occurred in August 2021 as a result of breach of protocols and quarantine fatigue. The total number of confirmed cases from 6 August to 29 October 2021 was 4,605, with a total of 32 deaths. Dominica began vaccinating in February 2021, and offers the AstraZeneca, Sinopharm and Pfizer vaccines.

Vaccine implementation challenges included: staffing shortages at all levels, leading to staff burnout and increased risk of infection with COVID-19; demotivated and demoralized staff; space limitations at quarantine centers; budgetary constraints; increased need for sanitization; transportation of cases; vaccine hesitancy among medical and nursing staff who refused to be vaccinated and encouraged the public not to be vaccinated. Coverage was as low as 32%. There were data management issues, particularly with vaccination program and management at the COVID Care Complex. Other issues included: lack of communication between teams; staff deployed to COVID-19-related duties leading to a suspension of regular services; political



involvement in the management of the pandemic, resulting in mixed reviews; lack of mental health support; and stigmatization. Currently, cases have finally begun to decrease, and restrictions on the movement of persons have been lifted. As of August 2021, 48% of the populations was fully vaccinated.

## **5.5 SAGE and TAG Recommendations and an Update on Effectiveness Studies**

The COVID-19 pandemic has caused significant morbidity and mortality throughout the world, as well as major social, educational, and economic disruptions. High-income countries have applied 35 times more vaccines against COVID-19 than low-income countries. Fifty-six countries failed to reach the target of at least 10% of the vaccinated population by September 2021 due to a lack of vaccines supplies. All regions have experienced a decline in coverage of routine childhood vaccines, but the magnitude and the speed of recovery vary. The Immunization Agenda 2030, which is a COVID-19 global vaccination strategy, is being adapted regionally with the goal of reaching 70% coverage in all countries by June 2022. The main immediate goal of vaccination against COVID-19 – more so in low- and middle-income countries with limited supply of vaccines – is to protect against severe COVID-19 disease and death.

The WHO SAGE recommends prioritizing the most vulnerable persons according to the COVID-19 vaccines roadmap. Additional recommendations include:

1. **Interchangeability:** SAGE recommends adhering to homologous schemes. In situations of scarcity or lack of vaccines, heterologous schemes can be considered, such as using a first dose of AstraZeneca and an mRNA (Pfizer/Moderna) vaccine for the second dose.
2. An additional dose should be given to moderately-to-severely immunocompromised persons at least 1 month and within 3 months after the primary series according to the treating physician evaluation and for older adults (> 60 years) who have received a standard 2-dose primary series of Sinovac or Sinopharm, with an interval of 3–6 months between the second and third doses.
3. During pregnancy and lactation, vaccination is recommended when the benefit of immunizing the pregnant woman overcomes the potential risks of the vaccines to be used; this should be part of the emergency use authorization by the WHO Emergency Use Listing Procedure.
4. Vaccination of children and adolescents should include only those with severe chronic comorbidities that place them at significantly higher risk of severe disease for vaccine prioritization.
5. Influenza vaccination during the pandemic: coadministration of an inactivated seasonal influenza vaccine and any WHO emergency-use listed COVID-19 vaccine is acceptable and will maximize the uptake of both vaccines.

The TAG strongly advocates that governments implement the SAGE roadmap for prioritization of COVID-19 vaccines and achieve high vaccination coverage among health and front-line workers, older persons, and other high-risk groups before administering doses to adolescents (ages 12–15). The TAG endorses all SAGE recommendations and encourages countries, where possible, to implement COVID-19 vaccine effectiveness (VE) studies. It is important to highlight that all the SAGE and the TAG recommendations have been updated in accordance with new evidence about the vaccines and the disease epidemiology.

VE studies: As of October 2021, there are 119 VE studies in 19 countries that reached inclusion criteria by WHO. A systematic review has found robust evidence for the high VE of COVID-19 vaccines in efficacy and effectiveness. All the vaccine platforms showed protection from severe disease or death in the general population was at least 80% and frequently almost 100%. VE against symptomatic disease is more heterogeneous but always higher than 65% and often dose

to 90%. Also, most of the studies have demonstrated indirect effect. Most vaccines preserved a high level of protection for most SARS CoV2 variants.<sup>2</sup>

## **6. VACCINE SAFETY SURVEILLANCE**

### **6.1 Status Update on the AEFI Regional Surveillance System**

As of 29 October 2021, more than 1.2 billion COVID-19 doses had been administered in 51 countries and territories in the Americas. In the English-speaking Caribbean, more than 5 million doses of COVID-19 vaccines have been applied in 25 countries and territories and many ESAVIs, both nonserious and serious, have not been reported.

To date, 10 countries have been trained in sentinel active surveillance according to the PAHO Sentinel Surveillance Protocol, and all Latin American and Caribbean countries and territories (except for Anguilla, Curaçao, Sint Maarten, Turks and Caicos Islands, and Uruguay) have been trained in ESAVI passive surveillance for COVID-19 vaccines following the WHO and PAHO manuals.

As a result of this training, PAHO has requested all countries to start sharing some basic aggregate data along with doses of COVID-19 vaccines administered by age groups, first and second dose, and the seriousness of the ESAVI by the same variables.

In May 2021, PAHO's Assistant Director, Dr Jarbas Barbosa, invited all the Ministers of Health of the Region, to participate of the Regional ESAVI Surveillance System, sharing their ESAVI database for implementing a case-based surveillance. To date, 11 countries and territories have shared their databases with PAHO: Barbados, Bolivia (Plurinational State of), Brazil, Chile, Costa Rica, Guatemala, Honduras, Peru, Puerto Rico, Paraguay, and El Salvador. Four more countries and territories have accepted to share case-based data: Argentina, Ecuador, Mexico, Turks and Caicos Islands, and Uruguay.

PAHO has convened 13 countries of the Region to participate with 38 sentinel hospitals to be part of a regional network for sentinel surveillance. Of those, one hospital in Jamaica has received the necessary training and two more hospitals in Barbados and Belize will join this network as soon as possible.

The role of this regional network is to flash red-alert signals anytime there is serious ESAVI associated temporally with a COVID-19 vaccine. This surveillance is specialized, proactive, with the collaboration of many clinical specialists, and laboratory and image services, which facilitates a complete investigation of serious and some nonserious ESAVI. Those reports will be sent directly to PAHO and the national level, to facilitate a permanent monitoring of these events, and to convene a Regional Committee to analyze those rare events along with the countries as soon as possible.

Based on the regional survey to assess the maturity of ESAVI surveillance systems in the Region that PAHO conducted between October 2020 and January 2021 in 23 countries of the English-speaking Caribbean subregion, the results included:

- 87% of countries had personnel available for supporting ESAVI surveillance activities ;
- 56.5% of countries had a guide or manual available at national level for ESAVI surveillance;
- 39% of countries used national standards for the operation of ESAVI, for instance, codification of clinical diagnosis, vaccines, and medications, among others;

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<sup>2</sup> Higdon MM, Wahl B, Jones CB, Rosen JG, Truelove SA, Baidya A et al. A systematic review of COVID-19 vaccine efficacy and effectiveness against SARS-CoV-2 infection and disease. medRxiv 2021:21263549; doi: <https://doi.org/10.1101/2021.09.17.21263549>

- Approximately 5% of countries had a national committee for vaccine safety.

Progress on indicators of ESAVI surveillance systems in the Caribbean countries can be summarized as follows: 1) with the introduction of the COVID-19 vaccines, some countries have improved their electronic ESAVI reporting system; 2) other countries have created their vaccine safety committees; 3) almost all Caribbean countries have received training in ESAVI passive surveillance by PAHO; 4) consultants have been hired to support Ministries of Health with the goal of strengthening ESAVI surveillance; and 5) some countries have expressed their political willingness to share ESAVI case-based data.

## 6.2 Safety Signs Identified in COVID-19 Vaccines

After the introduction of COVID-19 vaccines, there have been some signals detected that are being submitted to intense monitoring and research.

A signal is defined as any “information that arises from one or multiple sources (including observations and experiments), which suggests a new potentially causal association, or a new aspect of a known association, between an intervention and an event or set of related events, either adverse or beneficial, that is judged to be of sufficient likelihood to justify verificatory action.”<sup>3</sup>

A signal could have multiple sources, such as clinical trials, observational studies, individual reports, or aggregated data analysis coming from passive surveillance systems such as the ESAVI surveillance systems that countries should have in place. Once detected, the signal should be either confirmed or not confirmed by a thorough review of the information that is being reported. Then, after signal validation, some immediate actions might follow such as stopping the use of the vaccine if the risk is high enough. Also, one might take some more conservative decisions such as defining a research and monitoring plan to generate additional evidence and to understand better the behavior of the event.

The main purpose of the actions taken is to be able to objectively assess the risk–benefit of the vaccine to provide recommendations to the authorities and the public.

Using the Global Advisory Committee on Vaccine Safety’s history of statements on COVID-19 vaccines, one can observe the usefulness of vaccine safety monitoring and how information is generated, and how decisions are taken after detecting signals.

Some important conclusions about the signals evaluated include:

1. Deaths among frail older persons after Pfizer BioNTech mRNA vaccine: No direct causal link can be demonstrated. The vaccine adverse events might be added to an existing progressive process of deterioration that is going to lead to death and coincidentally be associated with the vaccine alone. The benefits for older persons outweigh the risks.
2. Influenza-like illness after COVID-19 vaccines: These symptoms are expected and should be made known to the vaccinated person. Considering that this might be a cause for sick leave, it is important to plan the timing of vaccination for healthcare workers providing essential services.
3. Thrombosis with thrombocytopenia syndrome: The evidence suggests a plausible link with adenoviral vaccines; however, the benefits of those vaccines far outweigh the risks. More research is needed on the mechanisms and the epidemiological association. Clinical

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<sup>3</sup> Council for International Organisations of Medical Sciences. Practical aspects of signal detection in pharmacovigilance. Geneva: CIOMS; 2010.

practice guidelines should be implemented in countries as adequate interventions could save lives.

4. Myocarditis and pericarditis: More evidence coming from controlled studies is needed to assess the relationship with the vaccines. For the moment, the benefits outweigh the risks. Immediate health care must be ensured for those having compatible signs and symptoms of myocarditis.
5. Guillain-Barré Syndrome (GBS): More evidence coming from controlled studies is needed to assess the relationship with the vaccines. For the moment, the benefits outweigh the risks. Immediate health care must be ensured for those having compatible signs and symptoms of GBS.

### **6.3 A SWOT Analysis of the National ESAVI Surveillance System and Plans for Sentinel Surveillance – Barbados**

As of 30 October 2021, over 17,000 cases and 153 deaths had been reported in Barbados. The ESAVI surveillance system is passive, population-based, with suspected ESAVIs to COVID-19 reported to an online data capture system, recorded in a health information system app and reviewed by a pharmacovigilance officer. Notification is timely, and AEFI reports classified as serious or medically important are investigated, assessed, and documented by the Pharmacovigilance Committee.

Key weaknesses of the system include that the online data capture tool for self-reporting does not have any restrictions, resulting in a lack of necessary data captured, and varying degrees of reporting bias including underreporting. Threats to the system include: delayed response to real or perceived vaccine safety issues; negative anecdotal claims about vaccine safety, which contribute to vaccine hesitancy; antivaxxers' messaging trumping COVID-19 vaccine public health communication; and sustainability of the program.

The CDC plans to support the development and roll-out of the vaccine-related events response plan, and PAHO plans to provide training to improve the quality of reporting, investigations, and causality assessment, as well as support the development of a surveillance plan. The CDC Caribbean Regional Office and the Task Force for Global Health are currently providing technical and financial assistance to Barbados in the areas of vaccine program planning, implementation, and evaluation.

### **6.4 Strengthening ESAVI Surveillance in Belize – Challenges and Solutions**

Belize's ESAVI surveillance was implemented in 2007, with monitoring conducted in 61 sentinel sites. One ESAVI case of the MMR vaccines was detected in 2019, and two ESAVI cases of the hepatitis B vaccine were detected in 2021. Challenges of the ESAVI surveillance system include: a shortage of human resources; a decreased uptake in other immunization programs; patients not being forthcoming to health facilities; and both private and public communication channels within the health system being overwhelmed by COVID-19.

Strategies to strengthen surveillance include: to maintain active surveillance teams in each region of the country to identify suspected cases; to continue collaboration with private sectors to report ESAVI; to maintain rapport with community health workers to ensure active surveillance in their communities; to engage community participation through the Mesoamerica Community Platform; to educate parents at vaccination sites on signs and symptoms of ESAVI, and how to report; to conduct continuous professional development sessions to stay current on latest ESAVI strategies; to improve relationships with the regional bodies in charge of ESAVI reporting; to conduct follow-up after completion of recommendation and document result for ESAVI cases; to create digital database of ESAVI cases; and to maintain a positive image of the vaccines to strengthen public confidence in vaccines.

## **7. COMMUNICATION STRATEGIES TO IMPROVE VACCINE UPTAKE**

### **7.1 Implementation of National Crisis and Risk Communications Plans for Building Trust in Immunization Programs**

Vaccine reluctance and refusal are not new. However, they are currently being amplified by an “infodemic” of misinformation and disinformation that is spreading just as fast as the COVID-19 virus, causing doubt and mistrust, even among healthcare workers. Planning is therefore critical before communicating, particularly when trying to help persons to make decisions in a crisis, while taking into consideration the power of social and digital platforms for good, as well as alternative, misleading information, and sometimes purposely disinformation about vaccines. This has also come at a time when people are less likely to remember the successes of vaccines in the past and the illnesses they eliminated, which are currently a threat again because of vaccine hesitancy and refusal. To counteract this, a risk communication approach is recommended for all countries, one that includes two-way and multidirectional communication and engagement with affected populations so that they can make informed decisions to protect themselves and their loved ones. The behavior change/risk communication goals are therefore: 1) to give the right information quickly – potential risks and steps being taken during an emergency; 2) to impact behavior change; and 3) to help people, leaders, and communities cope, make good decisions, and begin to return to normal life.

A crisis leads to rumors, speculation, uncertainty, and danger. To address the unfolding events and changing facts, anxiety, and the socioeconomic effects, the building blocks of risk communication are identified as trust, technical information, credibility, empathy, and shared values.

The behavior to change includes reluctance to accept vaccines, including COVID-19 vaccines and some of the considerations, such as for example: Should I take the vaccine? Who needs to take it? When should I take the vaccine? Which vaccine should I take? What happens next? What about side effects: long and short term and precautions afterwards?

The current communication approach, developed and disseminated by PAHO, is based on social listening and research and on the Ottawa Charter for Health Promotion. It is situated within the social marketing for behavior and social change framework. This approach will emphasize the strengthening of community action and the development of personal skills; it will highlight that PAHO is listening to the concerns of vaccine-hesitant individuals by developing a platform through which they can receive the responses they need from medical personnel they trust and identify with. The approach will also include the development of a campaign that amplifies stories about ordinary vulnerable persons talking about how they were able to face their fears and be vaccinated, and consistent with the Ottawa Charter for Health Promotion, this will strengthen community action and develop personal skills.

### **7.2 AEFI Crisis Communication – What, When, and How**

The objectives of the AEFI Crisis Communication are to: 1) communicate the three phases of vaccine safety communication crisis management; 2) know the determinants of vaccination; 3) identify actions and key actors; 4) engage in dialogue to strengthen trust; and 5) share practical tips. The main communication goal when responding to a vaccine crisis is to build, maintain, or restore trust in the importance of vaccines, in the benefits of vaccination and immunization, and in the authorities delivering them.

The preparation phase includes:

- acquire the evidence, engage with key actors, establish response mechanisms, inform the public to build resilience, and monitor and evaluate;

- understand the determinants of vaccination and the risk perception gap – the responsibility for the message to be understood rests with the sender, not the receiver;
- a basis of monitoring perceptions about safety – relevant methodological aspects;
- working with key actors – questions to identify them;
- coordination mechanisms – establish internal coordination strategy;
- process for responding to an event – summary of the process for an adequate response: understand the event, classify the type of event, classify the impact, communication response.

The implementation phase includes:

- to coordinate and commit, create the response, and implement the communication strategies, share the information, monitor, and continue the response;
- events to expect a crisis – ESAVI, vaccination campaign, change in the immunization program, publications, debate on vaccination;
- coordinate and commit – gather the response group and share information;
- response plan includes identifying key audiences, defining communication goals, tailoring/adapting messages, and selecting communication channels;
- share – prepare the spokesperson, inform the public, inform the media;
- monitor public opinion and the media.

The evaluation phase includes:

- evaluate;
- share the lessons learned;
- revise the communication plan.

Key messages:

- Prepare for safety events. Communicate correct information that transmits calm. Recognize the concerns of the public. Inform about the existence of a system that monitors the occurrence of ESAVI in the country and in the Region;
- Carefully consider your response to hesitant groups and antivaxxers;
- Be prepared for a crisis. It will happen. A crisis can harm public **trust** in vaccines and vaccination.

### **7.3 Report on Concerns, Attitudes, and Intended Practices of Healthcare Workers to COVID-19 Vaccine in the Caribbean Healthcare Worker Survey**

Healthcare workers (HCWs) are a COVID-19 vaccine priority group, as well as important and respected influencers of health-related attitudes and behaviors in the public sphere. There have been reports of high levels of vaccine hesitancy among HCWs. There is a need to assess and understand the concerns, attitudes, and intended practices of HCWs in the Caribbean to COVID-19 vaccines in order to design and implement targeted communication campaigns and ensure that messaging is appropriately responding to their concerns and questions. This evidence can lead decisionmakers in the development of public policy to establish adequate measures to improve its impact.

The purpose of the survey was to contribute to increasing vaccination acceptance and improve vaccine confidence among HCWs, and therefore to enable programs to design, target, and evaluate interventions to achieve greater impact with more efficiency, and to examine and understand comparable trends over time.

The objectives of the survey were: 1) to gather and use quality data on the behavioral and social drivers of vaccination and COVID-19 vaccine among HCWs in the Caribbean; and 2) to improve

implementation strategies and tailor communication approaches on COVID-19 vaccines and vaccines in general in the Caribbean.

Regarding the methodology, PAHO carried out a cross-sectional study that included an online survey of HCWs in the Caribbean (March–April 2021). The survey was composed of four sections: attitude to vaccines; vaccine readiness; attitude toward COVID-19 vaccines; and attitudes toward influenza vaccines.

The data included responses from 1,197 HCWs from 14 Caribbean countries (Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago). Forty-three percent of the participants were physicians, 75% were female, and 25.8% (309) were people between 21 and 32 years old.

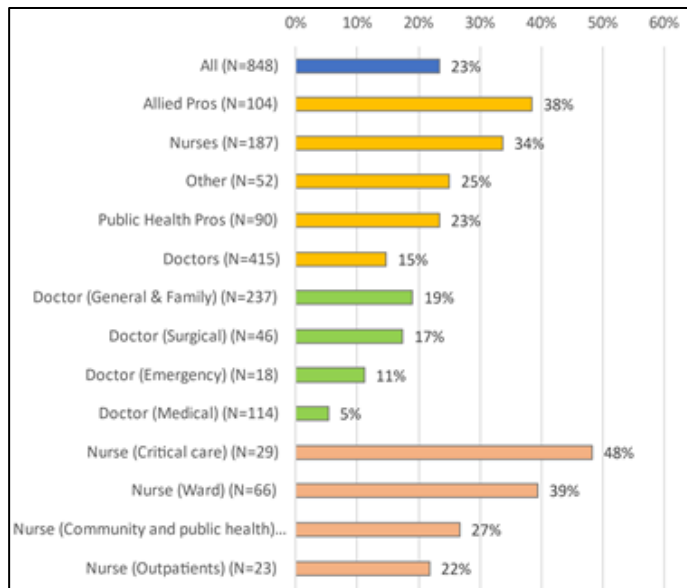
Results regarding vaccine readiness showed:

- 56% of all respondents agreed that new vaccines carry more risk than older vaccines; nurses display more skepticism toward new vaccines (65%) than do doctors (48%);
- 82% of nurses concurred that they are concerned about serious adverse effects of vaccines, with doctors displaying the lowest level of concern (73%);
- 81% of the youngest respondents (age quartile 21–32) were concerned with adverse side effects compared with 75% of the oldest respondents (age quartile 51–87).

Results regarding attitudes toward COVID-19 vaccines found that:

- 23% of respondents displayed some level of vaccine hesitancy in assessing COVID-19 vaccines readiness;
- 15% of doctors disagreed that they intended to have a COVID-19 vaccine as soon as possible compared with 34% of nurses;
- Vaccine hesitancy (Figure 5) was most prevalent among younger HCWs, where 36% of age quartile 21–32 did not intend to have a COVID-19 vaccine as soon as possible, compared to older age groups (15% of age quartile 51–87);
- 92% of respondents agreed that a COVID-19 vaccine would protect against severe COVID-19 infection. Doctors were the most confident among HCWs (96%, compared to 85% of nurses);
- The youngest respondents (age quartile 21–32) displayed less belief in the effectiveness of a COVID-19 vaccine (86%) than did the older respondents;
- Only 4% of all participants stated an intention to refuse a COVID-19 vaccine altogether (8% males vs. 3% females);
- 48% of respondents stated the country of manufacture of a COVID-19 vaccine shaped their opinion on a COVID-19 vaccine, and 47% of respondents agreed that development of COVID-19 vaccines might have been rushed, or the vaccines might not have been thoroughly tested;
- 30% of respondents agreed that they did not yet know enough about the vaccine to decide;
- 30% of respondents reported that information they had seen on social media had shaped their opinion of a COVID-19 vaccine.

**Figure 5. Vaccine hesitancy by healthcare worker category: individuals who responded they disagreed or strongly disagreed with having vaccinated against COVID-19 as soon as possible**



Qualitative analyses found that:

- The study identified 24 constructs (factors) within the four behavioral and social domains: thinking and feeling, social processes, practical issues, and motivation;
- Respondents' answers fit mostly within the **thinking and feeling** domain;
- The primary construct identified was related to doubts regarding vaccine safety (33%);
- HCWs expressed opinions and reasons mainly around "(lack of) confidence in vaccine benefits", "(lack of) perceived disease risk – to self"; and "(lack of) confidence in vaccine safety"; and "(lack of) trust in new vaccines" (thinking and feeling domain);
- Respondents also mentioned "(lack of) confidence in health authorities" (social processes domain), and "information needs (unmet)" (practical issues domain);
- The study identified a new construct under the thinking and feeling domain related to confidence in specific vaccine brands, as respondents indicated that their intent of getting vaccinated would change if a different brand of the COVID-19 vaccines were made available.

Interventions to address vaccine hesitancy among HCWs in the Caribbean include:

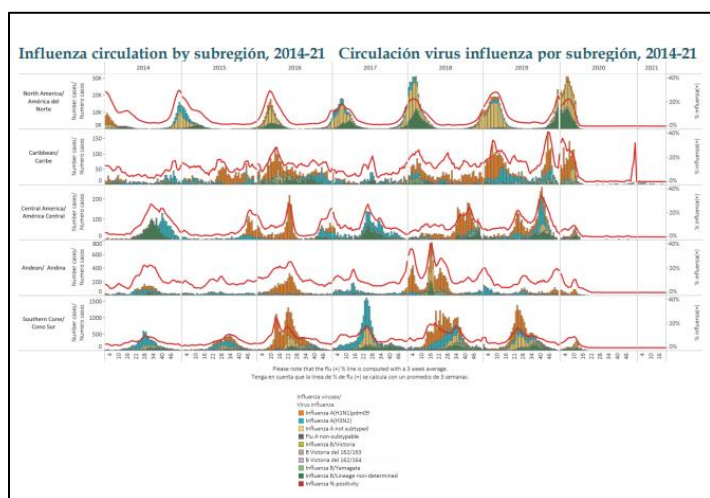
- Educational campaigns targeting specific HCWs categories and subcategories, as well as different age groups: posters, letters, educational material, etc. that increase risk perception of disease versus vaccination;
- Two-way communication: allow HCWs to express doubts and ask questions without judgment, responding with transparency and information, identify trusted spoke persons among HCWs;
- Capacity-building and training for HCWs on communicating about vaccines and vaccination: in-service seminars, group educational sessions, train the trainer model, lectures, virtual courses;
- Involve HCWs in design of vaccination interventions;
- Improve access to vaccination for HCWs: offer vaccination services at work and during convenient times; allow workers time off if needed following vaccination;
- Motivational interventions: use vaccine champions / trusted spokespersons to address HCW concerns about vaccination.



## 7.4 Influenza Vaccination in the Context of COVID-19

Although it is necessary to focus on the COVID-19 response, influenza viruses remain the likeliest pandemic pathogens, and continue to cause seasonal epidemics that entail a significant health and economic burden each year. Before the COVID-19 pandemic, seasonal influenza had been associated with an estimated 36,500 deaths and 400,000 hospitalizations every year in the Region. At the same time, surveillance data show that, since March 2020, influenza transmission has been at historical lows and even absent in temperate areas of the Region (Figure 6).

**Figure 6. Influenza circulation by subregion in the Americas, 2014–2021**



Source: Pan American Health Organization. Weekly influenza report EW 42: regional update: influenza and other respiratory viruses [Internet]. Washington, DC : PAHO ; 2021 [cited 27 Jan 2022]. Available from: <https://www.paho.org/en/documents/regional-update-influenza-epidemiological-week-42-november-3-2021>

In 2004, PAHO's TAG first recommended that all countries establish an influenza vaccination policy that prioritizes high-risk groups: children aged 6–23 months, pregnant women, individuals with underlying conditions, older adults, and HCWs. In 2012, WHO's SAGE on immunization identified pregnant women as the highest priority group for vaccination, followed by, in no order, children, older adults, individuals with underlying health conditions, and HCWs. As of 2019,<sup>4</sup> 39 of the 51 (76%) countries and territories in the Americas had an influenza vaccination policy targeting at least one of the five high-risk groups. Among them, 39 (76%) have a policy targeting vaccination of HCWs, 37 (73%) have a policy for vaccinating those with chronic disease, 33 (65%) have a policy for vaccinating older persons, 33 (65%) have a policy for vaccinating pregnant women, and 30 (59%) have a policy for vaccinating children.

In the context of the COVID-19 pandemic, maintaining influenza vaccination programs, particularly for high-risk groups, is essential in decreasing influenza-related morbidity and mortality and preventing further strain on the healthcare system. SAGE's September 2020 recommendations on vaccination of high-risk groups against seasonal influenza in the context of

<sup>4</sup> Vicari AS, Olson D, Vilajeliu A, Andrus JK, Roper AM, Morens DM, Santos JI, Azziz-Baumgartner E, Berman S. Seasonal Influenza Prevention and Control Progress in Latin America and the Caribbean in the Context of the Global Influenza Strategy and the COVID-19 Pandemic [Internet]. *Am J Trop Med Hyg*. 2021;105(1):93–101. <https://doi.org/10.4269/ajtmh.21-0339>

COVID-19 emphasized health care workers and older adults, to minimize the disruption of health services and reduce the burden of disease and the burden on health care systems.<sup>5</sup>

Some of the high-risk groups for influenza, are also at high risk of SARS-CoV-2 exposure (e.g., health workers) and/or severe COVID-19 (e.g., older persons, people with chronic diseases, and pregnant women). Given the overlap with priority groups for COVID-19 vaccination, SAGE recommended 14 days between the administration of COVID-19 vaccines and any other vaccine, including the influenza vaccine. This recommendation was reviewed by SAGE on 21 October 2021, as emerging data on coadministration with other vaccines became available and concluded that:

- Coadministration of COVID-19 vaccines with inactivated vaccines is acceptable in terms of immunogenicity and reactogenicity. No data on high-dose and live attenuated influenza vaccines;
- Data from other, non-COVID-19 vaccines, may rarely lead to decreased immunogenicity and increase reactogenicity.<sup>6</sup>

SAGE recommendations are critical, even in the context of almost complete absence of influenza activity in 2020/2021, due mostly to public health measures. It is unclear how decreased population immunity will impact upcoming influenza seasons as these measures are lifted. Risk of cocirculation of COVID-19 and influenza may place stress on health systems

## **7.5. Country Reports on Plans for Administration of Influenza Vaccine in the Context of COVID-19**

### **Trinidad and Tobago**

In Trinidad and Tobago, the flu season generally lasts from October to May. The seasonal influenza vaccination program was introduced in country in 2009 to protect those who are most vulnerable in the population from the risk of flu and the associated morbidity and mortality associated with influenza viruses. Reports indicate that individuals with chronic diseases seem to come forward to be vaccinated, while other high-risk groups in the population do not seem to access the vaccine in the same way. A key objective of the campaign is coverage among high-risk groups in the population. Threats to the program include COVID-19 fatigue among HCWs and the population, as well as the antivax movement. The strategy of the influenza program in country includes a robust vaccination plan to effectively manage the influenza virus amid the COVID-19 pandemic. To do this, the Ministry of Health intends to increase the accessibility of the influenza vaccines to the population using existing and established systems for the distribution of the COVID-19 vaccines. It plans to provide the public with practical and effective solutions to reduce the probability of illness associated with the flu virus, and to increase public education and awareness on the importance of being vaccinated, the type of flu viruses, and vaccination site locations. The influenza vaccination roll-out plans to launch a vaccination program on national television, to distribute vaccines (COVID-19, influenza) and screening for cancer, diabetes, and hypertension at all 109 health facilities, and to launch a national CARE FAIR on 29 and 30 October

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<sup>5</sup> World Health Organization. WHO SAGE seasonal influenza vaccination recommendations during the COVID-19 Pandemic, interim guidance, 21 September [Internet]. WHO; 2020 [cited 27 Jan 2021]. Available from:

[https://www.who.int/immunization/policy/position\\_papers/Interim\\_SAGE\\_influenza\\_vaccination\\_recommendations.pdf](https://www.who.int/immunization/policy/position_papers/Interim_SAGE_influenza_vaccination_recommendations.pdf)

<sup>6</sup> World Health Organization. Coadministration of seasonal inactivated influenza and COVID-19 vaccines, interim guidance, 21 October 2021 [Internet]. WHO; 2021 [cited 27 Jan 2021]. Available from: [https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE\\_recommendation-coadministration-influenza-vaccines](https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE_recommendation-coadministration-influenza-vaccines)

2021 at all mass vaccination sites. Campaign strategies include: health education and messages, with the tag line “Don’t Get the Flu – Don’t Give the Flu”; televised and radio interviews and Ministry of Health Press conferences; ticker tape messages; digital signage; newspaper advertisements; and sharing messages on social media and the Ministry of Health website.

### **Saint Lucia**

Saint Lucia has seen significantly reduced influenza vaccine acceptance and uptake during the COVID-19 pandemic. Like for the COVID-19 vaccine, there is a high level of hesitancy in country. Revised strategies and activities will continue to focus on:

- strengthening the influenza vaccine program – increase promotion at the regional and community levels; improve on availability and accessibility of the vaccine; engage private-sector health institutions and pharmacies; and vaccination at locations outside health facilities to help increase access to vaccination in some populations or situations;
- strengthening influenza vaccine education and communication to rebuild trust in the vaccine – clarify misconceptions and misinformation that reduce vaccine acceptance; conduct public education on the importance, safety, and efficacy of the vaccine; media saturation of produced educational materials; and development and airing of public service announcements that explain the difference between the influenza and COVID-19 vaccine;
- Retraining/education of primary care staff – retraining of staff on the vaccine for increased knowledge and ability to educate clients and clear misconceptions; and administration of the influenza vaccine (coadministration).

## **7.6 Supporting Digital Health for Immunization in the Caribbean**

The use of digital, mobile, and wireless technologies to support the achievement of health goals is known as digital health. It is a practical alternative to face various problems in immunization programs. Digital health has become a primary interest for which resolutions and documents that support its implementation have been carried out, including:

- United Nations General Assembly Resolutions 73/218 (2019) and 70/125 (2016);
- SDGs;
- The World Health Assembly Resolution on Digital Health was approved unanimously by WHO Member States in May 2018;
- Immunization Agenda 2030;
- PAHO Resolutions:
  - Roadmap for the digital transformation of the health sector in the Region of the Americas,
  - Policy on the application of data science in public health using artificial intelligence and other emerging technologies,
  - Revitalize immunization as a public good for universal health.

Although digital health can be used in any area of health, its use to strengthen immunization programs represents an opportunity that the countries of the Region of the Americas should take advantage of.

Based on the theory of the change presented in the TAG 2019, it is proposed to include the eight guiding principles for digital health, which should frame and strengthen the use and quality of data on immunizations throughout the life course. These eight guiding principles are:

1. Ensure universal connectivity in the health sector by 2030;
2. Cocreate digital public health goods for a more equitable world;
3. Accelerate toward inclusive digital health with an emphasis on the most vulnerable;
4. Implement interoperable, open, and sustainable digital health and information systems;

5. Mainstream human rights in all areas of digital transformation in health ;
6. Participate in global cooperation on artificial intelligence and any emerging technology ;
7. Establish mechanisms for trust and information security in the digital environment of public health;
8. Design public health architecture in the era of digital interdependence.

These guiding principles should generate improvements in the management, demand, acceptability, and confidence of vaccines in the Americas and the world, for which governments must prioritize, as appropriate, development, evaluation, implementation, and expansion of the use of digital technologies in addition to implementing evidence-based digital health interventions.

A digital health intervention is a discrete digital technology functionality that is applied to achieve health goals and is implemented within digital health applications and information and communications technology systems, including communication channels. WHO has recently developed the classification of digital health interventions based on its objective. Some of the interventions included in this classification are adaptable to the immunization program in its different components. It is important to note that digital health interventions would be transversal to the entire life cycle.

## **7.7 Country and Territory Reports on Strengthening and Implementing Digital Health Solutions – Lessons Learned**

### **Suriname**

PAHO is helping to strengthen Suriname’s Information Systems for Health, and has established an agreement with the University of Oslo to provide access to specific modules developed within the DHIS2 platform. Currently, patient-based records are being cleaned and finalized to be imported in the DHIS2 system. The target populations for COVID-19 vaccination are identified by district and community; the tool is adapted to include AstraZeneca, Moderna, Pfizer, and Sinopharm. Sixty users have been trained in the use of the system, and pilot implementation of use of the database has started in 24 health facilities that provide COVID-19 vaccines. Two persons in the data management team have been trained for the system translation; and the target population data has been updated with children aged 12–18 years.

Challenges of the tool include that most of the sites already working with the DHIS2 do not have access to Internet or sufficient computers; therefore, paper-based intake is done where needed. Moreover, the intake process using DHIS2 is slow, due to the quantity of information to be entered in the system during the intake process; immunization data from February to July have been cleaned and put in the format so that they can be imported into DHIS2. The University of Oslo has received the first data set of 180,360 records to be imported in the system; and remaining data over August and September are still pending to be placed in a format that can be imported into DHIS2. This is in progress.

Lessons learned include that a dedicated core team is needed that works hand in hand with external technical counterparts to draw up a masterplan with timelines. A needs assessment should be done on basic indicators, and standards on data recording need to be defined. When the recorded data are entered in the system, precautions need to be considered to avoid unnecessary delays.

### **Bermuda**

The digital system was initially developed for documentation of immunization for the EPI. The Electronic Immunization Register (EIR) system was prepared in 2019 with the support of PAHO. The implementation for the COVID-19 vaccine campaign began in January 2021. Bermuda continues to work on processes for digital systems and regulations, which include an IT security

plan, the Bermuda Immunization Information System, confidentiality and security guidelines that have been established, and input from the Attorney General's Office.

The EIR was utilized at the beginning of the COVID-19 campaign for documentation of vaccines; training was done for designated persons, along with agreements for standards of compliance in using the system. The ResQwest System was used initially for testing COVID-19. It was launched for vaccines in March 2021.

Challenges include: the inability to pilot the technologies, changes in two systems, EIR and ResQwest; problems with the online registration process; digital literacy issues for the public; barriers to access; trust issues; human resource impact; and Internet connectivity.

Lessons learned include the need to: utilize a systems approach for all vaccines and logistics reporting components; establish reporting relationships for data exchange; build relationships with stakeholders; and sensitize the public for digital technology

## **8. PRESENTATIONS OF AWARDS, RECOMMENDATIONS, AND CLOSURE**

### **8.1 Caribbean Surveillance Shield**

The annual Caribbean Surveillance Shield Award was established to recognize countries that have performed outstandingly on the surveillance component of their program during the previous year. The award is based on the following criteria: 1) timeliness of reporting; 2) percentage of sites reporting; 3) number of fever and rash cases reported compared to the expected; 4) rate of fever and rash cases; 5) adequacy of investigation of reported cases (percentage with blood samples; percentage with adequate investigation; and level of completeness of investigation forms); and 6) quality of weekly surveillance reports, including reporting of other VPDs.

The award consists of a certificate and the inscription of the name of the winning country on a plaque that is kept by the country during the following year until a new country is selected to receive the award. For 2021, the surveillance award was presented to **Grenada**. Awards for the second and third places went to **Barbados** and **Jamaica**, respectively.

### **8.2 The Henry Smith Cup**

The Henry C. Smith Cup is in honor of Mr. Henry C. Smith, who was the first PAHO-EPI technical officer for the Caribbean subregion and whose service in the subregion spanned 18 years. This award is given to the country whose EPI has made the most improvements in the past year. This award was presented to **Saint Kitts and Nevis** based on its 2020 vaccination coverage.

Participants at the 35th Caribbean Managers' Meeting sincerely congratulated the winning countries for being the recipients of awards and extended their compliments to all their health workers for their continued dedicated and outstanding performance during the past year.

### **8.3 Review of CiTAG Recommendations**

The meeting Chair and the CiTAG commends the Caribbean countries, EPI managers and their teams for their outstanding hard work, commitment, and dedication, and urges countries to:

- Prioritize and respond effectively to the COVID-19 pandemic, while at the same time sustaining the historic gains made in the EPI over the years.
- Reach children who have missed their routine vaccination, tally the additional doses given, and report to close the gap in vaccination coverage.
- Achieve and maintain vaccination coverage of over 95% in all districts, despite the challenges.
- Maintain high-level surveillance, especially AFP, and rash and fever surveillance. This is important because the world is still in the endgame of eliminating polio, with wild polio virus

type one (WPV1) still circulating in Afghanistan and Pakistan; an outbreak of circulating vaccine-derived polio type two (cVDPV2) in Nigeria; measles circulating in Brazil and elsewhere; and diphtheria in the Dominican Republic and Haiti.

- In the context of the current crisis, EPI managers and senior EPI staff need to transform their management and leadership approach to a higher level by delegating, task-shifting, supervising, training, monitoring, and quality assurance. This requires adjusting mindsets and changes in approach to better manage the COVID-19 pandemic response more efficiently and effectively.
- Recruit additional vaccinators from various sources including doctors, nurses, midwives, dentists, dental nurses, pharmacists, volunteers, and retired staff.
- Fully involve the private health sector at the national and local levels in rolling out the COVID-19 vaccination campaign.
- Fully involve all sectors, governmental, private, nongovernmental organizations, civil society, the security services, and volunteers in all components of the pandemic response and vaccination program at both national and local levels.
- Build a sustainable infrastructure for adult vaccination while sustaining and strengthening the childhood vaccination program.
- EPI managers and other senior staff must pace themselves and their staff to avoid burnout.
- Roll out the COVID-19 vaccines to as many persons as possible through detailed and careful microplanning to achieve the highest level of population immunity in order to decrease deaths, reduce the number of severe cases, and ensure that health services are not overloaded.
- Empower vaccination teams, and support and facilitate them without micromanaging them.
- Build trust among the population by being completely transparent and open with them and involving influential persons who are credible in the eyes of the people. Influential persons could include doctors and nurses as well as influential religious leaders, among others.
- Promote the flu vaccine which can be coadministered in different arms with any of the WHO Emergency Use List COVID-19 vaccines.
- Strengthen the national ESAVI surveillance system to detect, notify, investigate, analyze, and classify all serious cases. Be part of the Pan American ESAVI surveillance for COVID-19 vaccines. PAHO's technical cooperation toolkit is available to strengthen national capacities on ESAVI surveillance and to generate regional scientific data on vaccine safety.
- Promote digital health transformation using evidence-based decision-making to implement digital health components consistent with the degree of maturity of the digital context. Fill infrastructure and technology gaps, and take advantage of digital health tools and interventions to strengthen immunization systems.
- Continue to sustain public health and social measures such as the wearing of masks, hand hygiene, and physical distancing, especially in indoor spaces.

#### **8.4 Closure of Meeting**

Dr. Figueroa and Dr. Broome ended the meeting by paying special tribute to Dr. Cuauhtemoc Ruiz Matus, who will retire from PAHO in January 2022. They expressed their heartfelt thanks and gratitude for his leadership, support, and solidarity throughout the years.