

Immunization Newsletter

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Immunize and Protect Your Family

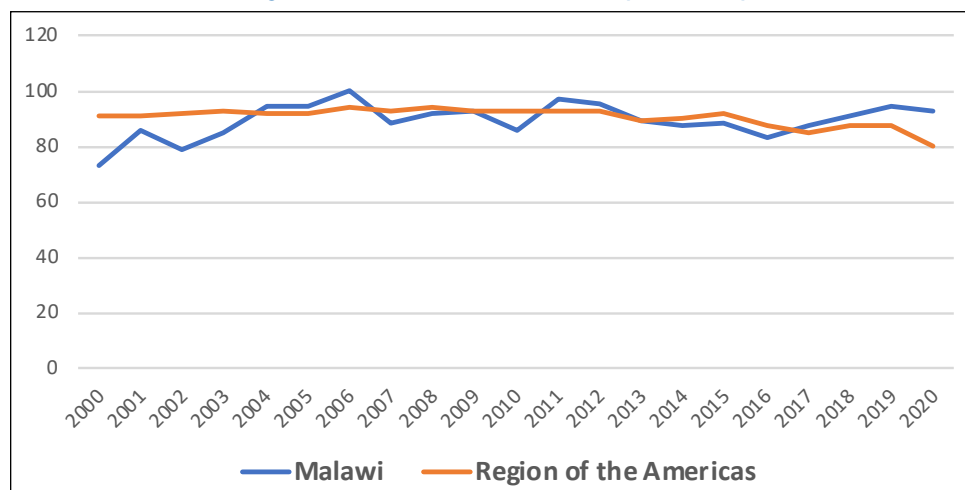
April 2022

WPV1 in Malawi and Risk to the Region of the Americas

On 12 February 2022, the Global Polio Laboratory Network (GPLN) confirmed isolation of wild poliovirus type 1 (WPV1) in a case of acute flaccid paralysis (AFP) in a 3-year-old girl, whose paralysis began on 19 November 2021. The virus, isolated from stool specimens collected on 26 and 27 November 2021, belongs to the YC2 group of the WPV1 genotype, which was circulating in Pakistan in 2020. The most similar genetic sequence (with a 19-nucleotide difference) corresponds to a poliovirus isolated in Sindh province in 2019 and 2020. Detection of WPV1 outside the two remaining endemic countries (Afghanistan and Pakistan) is concerning and highlights the continued risk of imported poliovirus.^{1,2,3}

Malawi, a country in southeastern Africa, reported its last case of polio in 1992 and obtained certification of polio eradication in 2005. The country has maintained vaccination coverage over 80% for two decades, in accordance with the regional target, and meets epidemiological surveillance targets (2 cases of AFP per 100,000 population under 15 years of age and obtaining two stool specimens from at least 80% of AFP cases).^{1,2,3} To compare the performance of polio immunization programs in the Region of the Americas with Malawi, **Figure 1** shows coverage with a third dose of polio vaccine and **Figure 2** shows the performance of AFP surveillance system indicators.

Figure 1. Coverage with third dose of polio vaccine in the Region of the Americas and Malawi (2000–2020)



Source: World Health Organization. Poliomyelitis vaccination coverage [Internet]. Geneva: WHO; [2022]. Available from: <https://immunizationdata.who.int/pages/coverage/POL.html>.

In addition to the WPV1 outbreak in Malawi, several polio-free countries have recently declared polio outbreaks caused by circulating vaccine-derived poliovirus (cVDPV). These include the following:

- On 22 November 2020, Tajikistan confirmed cVDPV2 in an AFP case with onset of paralysis. The virus is genetically related to a virus isolated from environmental samples in Pakistan in 2020 and 2021. In 2021, 32 cases related to this outbreak were reported; the last, with onset of paralysis in June. As of 15 March 2022, no more cases have been reported.⁴

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¹ Global Polio Eradication Initiative GPEI Statement on WPV1 in Malawi Geneva: WHO; 2022 [consulted 24 March 2022]. Available from: <https://polioeradication.org/news-post/gpei-statement-on-wpv1-in-malawi/>.

² World Health Organization. WHO AFRO: Malawi declares polio outbreak Cité du Djoué: WHO; 2022 [consulted 24 March 2022]. Available from: <https://www.afro.who.int/news/malawi-declares-polio-outbreak>.

³ World Health Organization. Wild poliovirus type 1 (WPV1) – Malawi. Geneva: WHO; 2022 [consulted 24 March 2022]. Available from: [https://www.who.int/emergencies/disease-outbreak-news/item/wild-poliovirus-type-1-\(WPV1\)-malawi](https://www.who.int/emergencies/disease-outbreak-news/item/wild-poliovirus-type-1-(WPV1)-malawi).

⁴ Global Polio Eradication Initiative Tajikistan. Geneva: WHO; 2022 [consulted 24 March 2022]. Available from: <https://polioeradication.org/where-we-work/tajikistan/>.

XXVII Meeting of PAHO's Technical Advisory Group (TAG) on Vaccine-Preventable Diseases

PAHO's Technical Advisory Group (TAG) on Vaccine-Preventable Diseases convened on 27 January 2022 to discuss how to tailor the updated WHO-SAGE Roadmap to the context of the Americas.⁵ Considering the available evidence, the TAG members endorsed the updated WHO-SAGE Roadmap and provided additional recommendations to guide the further use of COVID-19 booster doses in the Americas, so that priority groups receive them first. Finally, the TAG urged Member States to invest in improving the infrastructure and capacity of the national immunization programs both for routine vaccination and COVID-19 vaccination roll-out. TAG Members issued the following recommendations after the meeting:

1. In July 2021, the TAG declared that the Region was facing an impending crisis around vaccination services, and that ongoing attention must be given to sustaining and strengthening immunization, epidemiological surveillance, and other essential health programs. The Region continues to report its lowest levels of vaccination coverage for measles and DPT3 in the last 10 years. Also, Polio3 coverage for the Region in 2020 was only 82%, which is the lowest reported coverage since polio eradication in the Americas in 1994. Furthermore, the rate of reported AFP cases/100,000 children decreased by 39% in 2020 when compared to 2019. The Region's risk of outbreaks of pre-

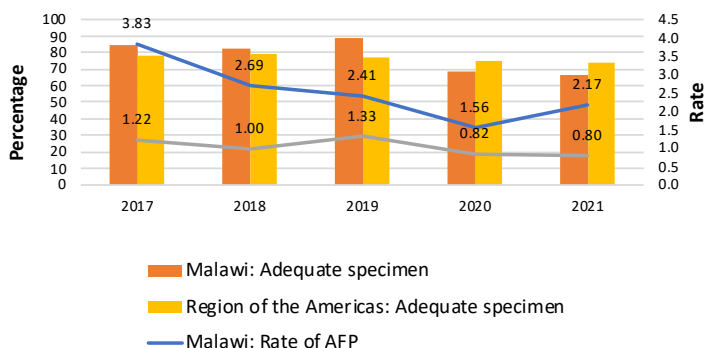
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⁵ Pan American Health Organization. XXVII Meeting of PAHO's Technical Advisory Group (TAG) on Vaccine-Preventable Diseases: Tailoring the SAGE Roadmap to the Requirements of the Americas and the Strategic Use of COVID-19 Booster Doses; 2022 [accessed March 2022]; available from: <https://iris.paho.org/handle/10665.2/55781>

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Figure 2. Surveillance indicators for acute flaccid paralysis in the Region of the Americas and Malawi, 2017–2021

AFP: acute flaccid paralysis

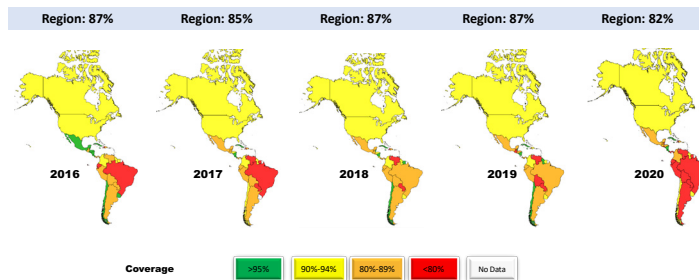
Source: World Health Organization. Polio case count [Internet]. Geneva: WHO; 1996–2022. Available from: <https://extranet.who.int/polio/public/CaseCount.aspx>.

- On 3 September 2021, Ukraine confirmed cVDPV2 in an AFP case with onset of paralysis. The virus is genetically related to one identified in the Tajikistan outbreak. In December 2021, a second case of polio was confirmed. The current humanitarian crisis puts the population at risk and hinders continuation of the national vaccination campaign that began on 1 February 2022.⁶
- On 17 February 2022, Israel confirmed cVDPV3 in an AFP case with onset of paralysis. From September 2021 to January 2022, several viruses derived from the third dose of the polio vaccine (VDPV3) were isolated from environmental samples collected in Israel and Palestine. As of the date of this article,⁷ authorities are investigating the origin of the isolated virus and risk of transmission.⁸

Although these countries were not classified as high-risk countries for virus importation, these data show that the presence of a single case of polio anywhere in the world poses a worldwide threat to children.

It is important to consider that the risk of a polio outbreak in a country depends on a combination of several factors, including the probability of importing WPV1 or cVDPV, the probability of early detection of an import or emergence of VDPV, and the probability of transmission following an import or emergence of VDPV. All countries are at risk of importing the virus due to the high mobility of people (tourists, migrants, etc.), and it is impossible to predict where an infected person might enter, leading to importation. In addition, it is important to remember that, even without population movements, there is a risk of VDPV emergence in situations where vaccination coverage is low. Therefore, countries should focus on improving their coverage, as vaccination remains essential to preventing the disease and is at the heart of the eradication program.

Polio vaccination coverage in the Region of the Americas has decreased considerably, increasing the likelihood of transmission following importation or from emergence of VDPV. In 2020, regional coverage of the third dose of the polio vaccine was 82%, the lowest vaccination coverage since the Region was certified as polio-free in 1994. In addition, from 2016 to 2020, the number of countries reporting coverage below 80% has increased (Figure 3). As these data only reflect national coverage, countries should analyze municipal coverage to identify the areas with the lowest coverage (particularly in municipalities where this is recurrent), analyze the causes, and take measures to improve vaccination coverage in these communities.⁹

Figure 3. Coverage with third dose of polio vaccine in children under 1 year of age in the Region of the Americas, 2016–2020

Source: Reports submitted by countries to PAHO through the Joint Reporting Form on Immunization of the United Nations Children's Fund, WHO, and PAHO.

Regarding the likelihood of early detection of an outbreak or of VDPV emergence, the sensitivity of epidemiological surveillance of AFP in the Region has decreased in recent years. In 2021, an AFP rate of 0.8 per 100,000 population under age 15 years was reported, 90% of cases were investigated within 48 hours, and 74% had an adequate specimen. However, the performance of measles and rubella surveillance indicators has worsened. In 2021, only three countries in the Region (Cuba, Mexico, and Paraguay) met the three tracking indicators for AFP surveillance performance. It is important to note that some countries report that over 80% of cases are investigated in under 48 hours or have an adequate specimen. However, these numbers could create misplaced trust in the system, since very few cases are actually reported. Therefore, maintaining the vaccination rate is essential to defining the sensitivity of surveillance and adequate performance of the system.¹⁰

Given this situation, PAHO and the Regional Certification Commission for the Polio Endgame in the Region of the Americas (RCC) have called for action by all countries. At an extraordinary meeting held in March 2022 among the RCC, National Certification Committees (NCC), staff from the ministries of health, and the Regional Polio Laboratory Network, in response to the global situation and high regional risk, recommendations were issued to reduce risk and maintain polio elimination in the Region. These are the recommendations for the countries:

1. Review the recommendations issued by the Technical Advisory Group (TAG) on Vaccine-Preventable Diseases and the RCC, and work to implement them.
2. Develop a risk mitigation plan and implement needed actions to ensure high vaccination coverage and a sensitive surveillance system.
3. Seek opportunities for training in components of the polio program at different levels of the health system.
4. Immediately report all cases of AFP and speed up investigation, especially in cases lacking a vaccination history or all doses on the schedule.
5. Speed up delivery of stool specimens to the appropriate laboratory.
6. Maintain an up-to-date polio outbreak and event response plan.
7. Prepare polio laboratories for rapid response.

With a historically low number of wild poliovirus cases, the world still can end transmission forever. To do so, all countries must reaffirm their commitment to polio eradication. ■

⁶ Global Polio Eradication Initiative Ukraine. Geneva: WHO; 2022 [consulted 24 March 2022]. Available from: <https://polioeradication.org/ukraine/>.

⁷ Reference date: 4 April 2022.

⁸ Global Polio Eradication Initiative Circulating type 3 vaccine-derived poliovirus confirmed in Israel. Geneva: WHO; 2022 [consulted 24 March 2022]. Available from: <https://polioeradication.org/news-post/circulating-vaccine-derived-poliovirus-type-3-confirmed-in-israel/>.

⁹ Reports submitted by countries to PAHO through the Joint Reporting Form on Immunization of the United Nations Children's Fund, WHO, and PAHO.

¹⁰ AFP surveillance reports that countries send to PAHO.

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ously controlled vaccine-preventable diseases is at its highest for the last 30 years, in the event of continuous measles/rubella transmission, WPV/ VDPV importation, or VDPV emergence. While countries must continue to manage the COVID-19 vaccine roll-out, they must reinvigorate their national immunization programs to close vaccine coverage gaps, reach all eligible persons, and promote the benefits of vaccinations for universal health. Failure to act now will result in outbreaks and continued low coverages of vaccines, which will significantly damage health and economies.

2. Considering the anticipated intensified influenza activity in the Northern and Southern Regions of the Americas in 2022, countries using the vaccine composition for the Southern Hemisphere should carefully plan and implement influenza vaccination activities in the first quarter of 2022. These activities should include the Vaccination Week in the Americas, which has proven to be a strong platform to achieve high vaccination coverage rates against influenza across age groups.
3. After two years of almost exclusive focus on COVID-19 response operations, many indicators of healthcare performance, access, and quality of services have declined. If this decreasing trend continues, further impacts on services and healthcare staff burnout are anticipated, resulting in further burden and loss of life from various health conditions. The TAG urges countries to start considering the potential need for longer-term COVID-19 vaccination operations, to start strategic planning now, and to ensure the integration of COVID-19 vaccination activities in the routine national immunization programs.
4. The TAG commends countries and their health staff and front-line workers for their concerted response to the COVID-19 pandemic and the roll-out of COVID-19 vaccines. The Region of the Americas has succeeded in achieving 64.5% of its population being fully vaccinated by 11 February 2022. However, 14 countries of the Americas did not reach 40% COVID-19 vaccine coverage by 31 December 2021, leaving large portions of their population at risk for severe disease, hospitalization, and death due to COVID-19.
5. The TAG strongly urges PAHO and other partners and stakeholders to provide additional financial and technical support to countries with low vaccination coverage rates. This support may include the provision of COVID-19 vaccine doses, technical support and deployment of personnel to support vaccine roll-out operations and provide relief to already exhausted field staff, purchase and maintenance of cold chain equipment, and training activities to expand the health workforce. Also, TAG recommends that PAHO and other technical partners expand field assessments and community engagement operations to understand the root cause of low COVID-19 vaccine uptake.
6. The TAG endorses the WHO-SAGE Roadmap for prioritizing use of COVID-19 vaccines, in its most recent update from 21 January 2022, as an approach to optimize the global impact of COVID-19 vaccines, based on public health goals, global and national equity, and vaccine access and coverage scenarios, and emphasizes the following guidance:
 - a. Countries with low rates¹¹ of primary series coverage should first achieve high primary series coverage rates among the higher-risk priority groups (i.e., older adults, health workers, and immunocompromised persons) before offering vaccine doses to lower-risk priority groups.
 - b. Countries with moderate-to-high primary series coverage rate in higher-risk priority groups should usually prioritize available vaccine supply to first achieve high booster dose coverage rates in higher-risk priority groups before offering vaccine doses to lower-priority groups.
7. The TAG notes with concern that many countries do not collect information on the age and population subgroup of vaccinated persons. Therefore, the TAG strongly recommends that countries collect and compile COVID-19 vaccination data with stratification by age, sex, and geographic area. The collection of other descriptors (e.g., healthcare workers, pregnant women) will enable further refinement of programmatic activities and guide vaccine

prioritization operations. All required data points should be included in the COVID-19 vaccination electronic Joint Reporting Form (eJRF) that they already share weekly with PAHO.

8. Pregnant women have been identified among the groups at high risk for severe disease and death from COVID-19, and the COVID-19 burden in pregnant and lactating women in the Region is significant. The WHO-SAGE Roadmap reinforces that pregnant women are a high-priority group for COVID-19 vaccination. Yet, vaccination rates for this priority group remain low across the Region. The TAG urges Member States to refocus efforts to vaccinate pregnant women, including pregnant adolescents.
9. Almost all countries of the Americas have introduced COVID-19 booster doses for selected population groups. The TAG welcomes the publication of the updated WHO-SAGE Roadmap for prioritizing COVID-19 vaccines and offers additional guidance for the timing and use of booster doses in countries of the Americas.
 - a. Countries with low to medium vaccination coverage rate¹¹: All efforts should be made to achieve high coverage with a primary series and booster among highest and high priority-use groups.¹²
 - b. Countries with high to very high vaccination coverage rate¹¹:
 - Countries that introduced a booster dose policy for all persons aged 18 or older should conduct a subnational analysis of the vaccination coverage rates by risk priority groups to ensure that highest- and high-priority groups receive a primary vaccination series and a booster.
 - Countries that introduced a booster dose policy for highest-risk priority groups only should conduct national and subnational analyses to determine when and how to expand the use of booster doses in the national COVID-19 vaccination strategy.
10. The TAG salutes the support of donor countries, which contributed more than 28 million COVID-19 vaccine doses to the Americas and continue to provide financial support for various activities required for COVID-19 vaccine roll-out. On behalf of the people of the Americas, the TAG recognizes the important contributions of the United States of America, Spain, Canada, France, Germany, Japan, Sweden, Norway, and Denmark.
11. The TAG recognizes PAHO's strong technical support on COVID-19 vaccine deployment and introduction in 2021 and urges the Organization to maintain its high level of engagement.
12. The children of the Americas continue to face the worst educational crisis of the last century, with millions of children yet to return to the classroom. The TAG strongly urges countries to reopen schools and resume in-person learning, while reinforcing recommended public health and social measures (such as mask wearing, social distancing, and ensuring adequate ventilation). Teachers and educational personnel are among high-priority groups for COVID-19 vaccination and should be prioritized for vaccination. The TAG echoes the words of the WHO Director-General and PAHO's Director, as well as UNICEF recommendations, in stating that vaccination of children and adolescents should not be a prerequisite for school reopening.
13. Regardless of the SARS-CoV-2 variant of concern in circulation, non-pharmaceutical public health and social measures continue to be effective and recommended strategies to reduce virus transmission and minimize the burden of COVID-19 in society. The TAG urges countries to maintain these measures and integrate them into the national response strategy as one of the most important tools to mitigate the impact and minimize the effects of the pandemic. ■

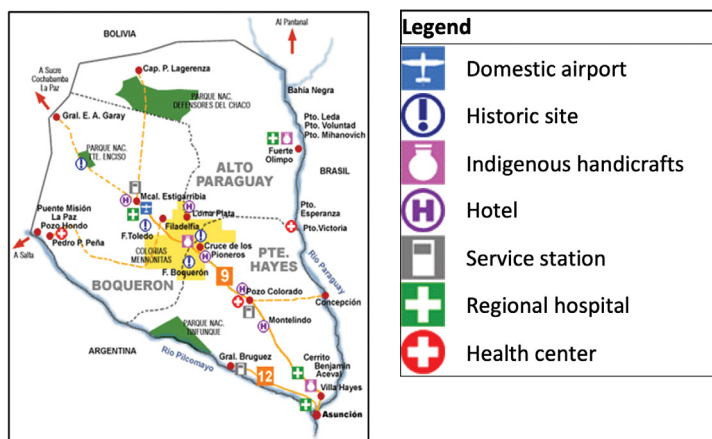
¹¹ World Health Organization. WHO SAGE Roadmap for prioritizing uses of COVID-19 vaccines. Specific coverage thresholds are not provided, as countries may have different abilities to reach these populations. As general guidance, very high coverage in the very high and high priority groups would be above 70%, and low coverage below 10%. Geneva: WHO; 2022 [accessed January 2022]. Available from: <https://www.who.int/publications/item/WHO-2019-nCoV-Vaccines-SAGE-Prioritization-2022.1>

¹² Highest priority-use: Older adults; Health workers; Immunocompromised persons. High priority-use: Adults with comorbidities; Pregnant persons; Teachers and other essential workers; Disadvantaged sociodemographic subpopulations at higher risk of severe COVID-19. Available from: <https://www.who.int/publications/item/WHO-2019-nCoV-Vaccines-SAGE-Prioritization-2022.1>

COVID-19 Vaccination in Indigenous Communities in Paraguay: A Differentiated Strategy to Reach Vulnerable Groups

This article systematizes the process to implement the COVID-19 vaccination plan, carried out by the Health Regions of the three departments of the Paraguayan Chaco (Boquerón, Presidente Hayes, and Alto Paraguay, (Figure 4), in coordination with the Expanded Program on Immunization (EPI) of the Ministry of Public Health and Social Welfare and with PAHO's technical cooperation, in response to the epidemiological situation of the country's Indigenous population and vaccine hesitancy.

Figure 4. Map of the three beneficiary departments of the COVID-19 vaccination plan in Paraguayan Chaco Indigenous communities



Source: National Statistics Institute of Paraguay: Proyección para el 2011. Available from: <https://www.ine.gov.py/>.

COVID-19 in Paraguay's Indigenous Peoples

According to the Federation for the Self-Determination of Indigenous Peoples of Paraguay (FAPI), of the 463,522 confirmed COVID-19 cases and 16,488 deaths due to complications in the country, reported from 7 March to 8 December 2021, 600 cases and 78 deaths were in Indigenous people.¹³ The most affected Indigenous peoples were the Qom, Pai Tavytera, Nivacle, Mbya, Guaraní, Maka, Guaraní Occidental, Enxet Sur, Enlhet Norte, Ayoreo, Ava Guaraní, Aché, Sanapaná, Guaraní Nandeva, Yshir, Chamacoco, and Angaité.

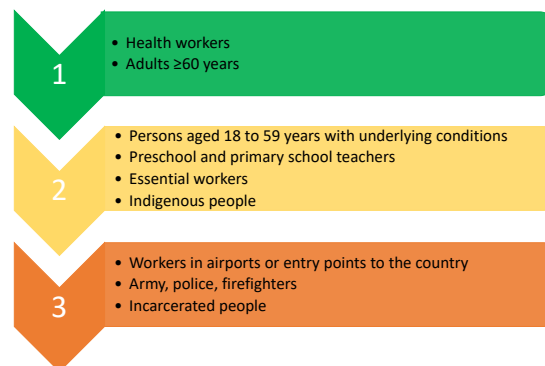
Furthermore, 10 of the 22 municipalities that reported a high number of cases in the Indigenous population are located in the western region of the country, known as the Chaco, in the departments of Boquerón, Alto Paraguay, and Presidente Hayes.

National COVID-19 Vaccination Plan

Paraguay's national COVID-19 vaccination plan includes three stages for the vaccination of different priority groups, depending on their risk of developing severe forms of the disease, or death, in a context of progressive dose availability (Figure 5).

Vaccination of the Indigenous population, along with other population groups at high risk of contracting the disease and developing complications or dying, was included in Stage 2 of the plan, although vaccination of people over 60 years of age in this population group was included in Stage 1. Since the initial roll-out of the COVID-19 vaccine in the country, vaccine hesitancy was reported in some Indigenous families and even in entire communities because they considered it unsafe. This information was provided by health workers from different Health Regions in the country and appeared in the press.¹⁴ In addition, many of these communities are in hard-to-reach areas, contributing to limited access to vaccination.

Figure 5. Priority groups in Paraguay's COVID-19 vaccination plan



Source: Ministry of Public Health and Social Welfare. Plan nacional de vacunación contra el COVID-19. Asunción: Gobierno de Paraguay; 2020. Available at: <https://www.mspbs.gov.py/dependencias/portal/adjunto/24821c-20201229PlanVacunacionv03.pdf>.

COVID-19 Vaccination Plan in Indigenous Communities of the Paraguayan Chaco

The COVID-19 vaccination plan for Indigenous communities originated as part of PAHO's technical cooperation in the country, with the intention of strengthening vaccine roll-out in this population, taking a comprehensive intercultural approach. Therefore, planning was done with multidisciplinary consultation between the EPI and the Health Regions of Boquerón, Presidente Hayes, and Alto Paraguay. Other units of the Ministry of Public Health and Social Welfare participated in the design and implementation of the social communication strategy, an essential element of improving vaccine uptake, such as the National Directorate of Indigenous Peoples (DINASAPI) and the Directorate of Communications (DIRCOM), as well participatory and representative bodies of the beneficiary population, the National Council for the Health of Indigenous Peoples (CONASAPI), and the Federation of Indigenous Peoples of Paraguay.¹⁵

The overall objective of the plan was to roll out safe vaccination as a preventive measure against COVID-19 in Indigenous communities in the departments of Alto Paraguay, Boquerón, and Presidente Hayes. To this end, four specific objectives were defined, with their respective lines of action and key activities. **Table 1** summarizes the plan.

The plan was implemented from 26 July to 11 December 2021. Participation by the population, from the planning of activities to their implementation, was an essential element for achievement of the objectives. In total, 18 rounds of vaccination were conducted, in which 155 remote communities participated that could not be served during the pandemic due to limited logistical resources, and which included people who were hesitant to accept COVID-19 vaccination.

As part of the awareness-raising process to promote vaccine uptake, a social communication strategy was implemented that included development of audiovisual material, with key messages validated by the different participating groups. The material includes 40 types of posters designed for digital printing and reproduction in Spanish and translated into five native languages (Nivacle, Enlhet, Qom, Ayoreo, and Guaraní), and six podcasts (in Spanish, Ayoreo, and Qom) for radio and social networks promoting vaccination of Indigenous peoples (Figure 6). To disseminate these materials, time was purchased on the community radio stations with the widest reach in the country's western and eastern regions. In addition, 107 community health

¹³ Federación por la Autodeterminación de los Pueblos Indígenas. Población indígena rural y urbana con casos confirmados de COVID-19; 2022 [consulted 8 December 2021]. Available from: <https://experience.arcgis.com/experience/2a1e7ad30b3549d18b298f51f911b524%20>.

¹⁴ ABC Noticias. Pueblos nativos del Chaco paraguayo rechazan aplicarse vacuna anticovid. Paraguay; 2021 [consulted 8 December 2021]. Available from: <https://www.abc.com.py/nacionales/2021/05/03/pueblos-nativos-del-chaco-paraguayo-rechazan-aplicarse-vacuna-anticovid/>.

¹⁵ Biblioteca y Archivo Central del Congreso de la Nación. Ley Nº 5469 / De la salud de los pueblos indígenas. Paraguay; 2015 [consulted 8 December 2021]. Available at: <https://www.bacn.gov.py/leyes-paraguayas/4455/de-la-salud-de-los-pueblos-indigenas.4>

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Table 1. COVID-19 Vaccination Plan for the Indigenous Population

Specific Objectives	Line of Action	Key Activities
1. Ensure a safe and timely vaccination process.	1.1 Strengthen local capacity for implementation of vaccination activities.	<ul style="list-style-type: none"> • Discussion of the vaccination plan with family health units responsible for vaccination in the intervention communities. • Micro-planning of vaccination activities. • Creation of work teams. • Training for vaccinators and supervisors on the characteristics of the vaccines to be used, their efficacy and safety, including possible adverse events. • Rental of all-terrain vehicles to transport vaccination brigades to prioritized communities.
	1.2 Strengthen surveillance of Adverse Events Following Immunization (AEFI).	<ul style="list-style-type: none"> • Design and printing of informational material about AEFI. • Training for health personnel on reporting AEFI.
2. Foster community engagement in planning and implementation of the plan.	2.1 Build strategic partnerships with community leaders and other key actors for implementation of vaccination activities.	<ul style="list-style-type: none"> • Sensitization of community leaders on the importance of COVID-19 vaccination and coordination for implementation of the plan's timeline. • Training for community health workers on the importance of vaccination and vaccine safety for vaccine promotion. • Provision of promotional material with vaccine safety messages.
3. Strengthen implementation of the COVID-19 vaccination information system.	3.1 Develop local capacity for implementation of the electronic vaccination registry.	<ul style="list-style-type: none"> • Provision of computer equipment: laptops and printers for vaccination centers in the three Health Regions to ensure registration of vaccinated persons. • Printing and provision of vaccination records and certificates. • Training of registrars for physical and digital information entry.
4. Promote COVID-19 vaccine uptake, improving access to information on the importance of vaccination.	4.1 Design and implement a culturally appropriate social communication strategy.	<ul style="list-style-type: none"> • Hiring of a consultant to prepare the proposal. • Validation of the strategy proposal with the population, including production of key messages and materials. • Preparation, printing, and distribution of the material. • Contracting with the media and inter-institutional coordination for dissemination of the material produced.

workers were trained, who visited communities and provided their leaders with information on vaccine safety and importance.

Considering the importance of access to timely and reliable information on the vaccination process to guide interventions, computer equipment was provided to all vaccination centers in the three Chaco Health Regions, and health workers were trained to use the database of vaccinated persons. Vaccination brigades were transported to the selected communities in vehicles equipped to travel on rough roads. Motorcycles (with road safety equipment) were also provided for monitoring vaccination in areas with better access. To optimize the presence of the health sector, multidisciplinary health teams were formed to accompany the vaccination brigades and provide other primary health care services.

The plan resulted in administration of 17,172 doses of COVID-19 vaccine: 15,009 doses for the regular schedule and 1,063 doses as part of the national measles, rubella, and polio follow-up vaccination campaign. Pending vaccination schedules were completed and 43 unvaccinated children were identi-

fied. At the same time, 7,175 medical consultations were conducted, 114 pregnant women were recruited for their first prenatal check-ups, and three deliveries were attended.

Figure 6. Posters in Spanish and Ayoreo developed as part of the social communication strategy to promote COVID-19 vaccination



Source: Ministry of Public Health and Welfare, Paraguay.

Lessons Learned

- Territories such as the Paraguayan Chaco, due to their contextual characteristics, require a comprehensive strategic approach to the implementation of different health programs, within the primary health care framework, in order to reduce gaps and move toward universal health coverage and universal access to health for the population. The vaccination plan, in addition to achieving its main objective of vaccinating the population against COVID-19, helped improve access to other essential health services and benefits.
- Community engagement in the design and implementation of public health interventions is critical to ensuring achievement of goals. At the same time, this creates opportunities for people to experience new ways of participating.
- Although vaccination coverage on the regular schedule is adequate in two of the plan's three beneficiary departments (Alto Paraguay and Boquerón), communities were identified where vaccination schedules cannot be completed or started on time, due to limited geographical access.
- The awareness-raising process led by local health workers, as well as coordination with the different local leaders, facilitated implementation of the plan on the established timeline.
- The development and implementation of a communication strategy, in line with the cultural characteristics of the population and validated by representative bodies, was essential in improving COVID-19 vaccine uptake.
- Engagement in and acceptance of the vaccination plan differed among the three regions and was greater in Boquerón and Alto Paraguay. Commitment by local health authorities to the use of resources and opportunities for cooperation must be ensured.

Challenges

- Develop a roadmap at the national and subnational levels in order to continue toward universal access to health, leaving no one behind. It is necessary to consider implementation of differentiated strategies with community engagement to ensure inclusion of vulnerable populations and their comprehensive care. The EPI could spearhead the process.
- Update mapping of the different vulnerable population groups and their health indicators, prioritizing them and identifying needed resources.
- Systematize the different experiences during implementation of the plan in order to design new intervention proposals.
- Strengthen the capacity of the different Health Regions to manage the physical and human resources necessary for implementing the different health programs, especially immunization. ■

Strengthening the Cold Chain to Provide Access to COVID-19 Vaccines for Populations in Vulnerable Situations in the Americas

A collaboration between PAHO and Global Affairs Canada (GAC) has the objective to achieve improved health and protection from COVID-19 among populations in vulnerable situations in Latin America and the Caribbean. The current COVID-19 situation in the Americas, while evolving, continues to be concerning – especially when considering the intersection of limited vaccine availability, weakened health systems, existing health inequities, and the fact that it has led to some of the highest cumulative case numbers and death rates in the world.

GAC has provided funding for selected countries to improve their cold chain storage and transport capacities, to ensure access to COVID-19 vaccines that are safely stored and transported. Safe storage and transportation of these vaccines ensures they are maintained at the recommended temperatures and supports optimal vaccine potency.

The intent of this project is to support countries in the Region as they prepare for a surge in vaccine supply from quarter four 2021 until quarter one 2022. This preparation includes the training of personnel in vaccine delivery, related cold chain operations, and the infrastructure strengthening that is necessary to keep vaccines at temperature beyond the central level, as well as ensuring that healthcare workers in the selected countries have access to the correct information for managing all cold chain, supply chain, and logistic operations.

The criteria to select the countries were the following:

- Countries with gaps in estimates of additional capacity for storage and distribution of COVID-19 vaccines at all levels;
- Countries with refrigeration equipment that recorded temperature excursions;
- Countries that are not using continuous temperature monitoring devices;
- Countries with gaps in vaccine distribution to difficult-to-reach areas;
- Countries with remote areas lacking electricity or stable electricity.

Consequently, the following countries were chosen to improve their cold chain and supply chain operations: Bolivia, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Suriname, and Venezuela. PAHO's technical immunization staff worked with each country to assist and advise on the analysis of and specifications for equipment selection. PAHO staff also developed and held workshops to train healthcare workers in the use and management of Ultra Low Temperature (ULT) equipment and ULT vaccines. Guidance was also provided on cold chain and supply chain operations.

To date, Cuba, Dominican Republic, El Salvador, Honduras, Nicaragua, Panama, and Mexico have received some of the cold chain equipment requested, like

refrigerators, ULT freezers, solar refrigerators, freezers, cold boxes, vaccine carriers, and temperature monitoring devices. For example, the Dominican Republic has already received some of the requested refrigeration equipment and technical assistance.

Dominican Republic

The introduction of the COVID-19 vaccine in the Dominican Republic has implied the expansion of the vaccine storage and transport capacities at all levels, as well as the adaptation of processes aimed at strengthening the cold chain. In this sense, as part of the planning process to introduce the vaccine in 2020, the Expanded Program on Immunization (EPI) updated the inventory of cold chain equipment, identifying storage and distribution gaps, both at vaccination sites and collection centers at the provincial level for the introduction of COVID-19 vaccines.

Given the situation in the Dominican Republic, GAC in collaboration with PAHO supported the first shipment of 20 refrigerators for the EPI. This shipment was part of the requested refrigeration equipment to support the cold chain and expand the storage capacity for vaccines in the province-level collection centers prioritized by the country, with an emphasis on those located in border areas. Additionally, it is expected that two cold rooms for the national warehouse will arrive in April. This donation will contribute not only to the fight against COVID-19, but also to improving access to the other vaccines that are part of the country's immunization program.

During the delivery ceremony,¹⁶ the PAHO/WHO Representative in the Dominican Republic, Dr. Olivier Ronveaux, highlighted the importance of this donation in strengthening the collective health of the country. While the General Consul of Canada, Collin Holditch, on behalf of his Government, expressed the satisfaction of supporting the Dominican Republic in this regard. Likewise, the Deputy Minister of Collective Health of the Dominican Republic's Ministry of Public Health, Dr. Eladio Pérez, indicated that the contribution comes at the right time to fight for the public health of the country. "I know this is something that will not only contribute to the fight against COVID but also contribute to our work with other vaccines, the 17 that are part of the immunization program in the country. Above all, in border areas where we have the greatest need," Pérez added.

The Government of Canada, through PAHO, has provided more than US \$400,000 to strengthen the storage and distribution capacities for vaccines in the country, in addition to strengthening other components of the EPI, such as epidemiological surveillance, training, and supervision, among others. ■

CDC's STOP Program Recruits Global Public Health Professionals to Support Polio Eradication and Other Emerging Disease Threats

The STOP Program (STOP), previously known as the Stop Transmission of Polio Program, was founded by the U.S. Centers for Disease Control and Prevention (CDC) in 1998. STOP supports global polio eradication efforts as part of the Global Polio Eradication Initiative (GPEI), in partnership with the World Health Organization (WHO); UNICEF; Rotary International; Gavi, the Vaccine Alliance; and the Bill and Melinda Gates Foundation. STOP has been recruiting consultants from around the world since 1999 and provides opportunities for public health professionals to develop specific skills, gain field experience, and contribute to the global polio eradication effort.

To date, STOP has recruited, trained, and deployed more than 2,200 participants, serving on over 4,800 assignments in 80 countries across all six WHO regions. As CDC's largest global workforce program, STOP team members have supported governments to enhance surveillance for vaccine-preventable diseases (VPDs), strengthen routine immunization systems, support supplemental immunization activities, use data for action,

utilize communication and advocacy for immunization, and respond to disease outbreaks. STOP's contributions to the success of the GPEI have not only helped advance polio eradication efforts but also supported regional and national responses to emerging infectious diseases, including the COVID-19 pandemic.

STOP continues to support work in the Region of the Americas and started programs in Haiti in 2006. In 2013, during the implementation of the Haiti Task Force project to strengthen VPD surveillance, STOP in-country consultants played a key role in training, supervising, and evaluating National Assistant Epidemiologists. STOP consultants were critical to the improvement of acute flaccid paralysis (AFP) and measles/rubella surveillance performance through active case search efforts to identify unreported cases. As a direct result of this work, Haiti was certified free of measles, rubella, and congenital rubella syndrome by the PAHO Regional Certification Committee in 2016.

Today and following Haiti's first reported case of COVID-19 in March 2020, STOP consultants in the

country have been instrumental in the implementation and monitoring of local COVID-19 response plans in the Ouest, Sud-Est, Nord-Ouest, and Grand'Anse departments.

For many STOP alumni, work on deployments and international experience have helped boost future career opportunities. Dr. Edmond Gue is a perfect example. Dr. Gue was a STOP team member from Burkina Faso who was selected to support Haiti in 2013–2014. Following his two deployments with STOP, he was hired by the PAHO-Haiti country office as an immunization advisor and played a vital role in support of the STOP Team at CDC Headquarters in Atlanta.

STOP is expanding recruitment in the Region of the Americas and plans to start accepting applications in May 2022. For more information on the STOP Program and how to apply, visit [CDC's STOP Program webpage](#). ■

Contributed by: A.J. Williams, Public Health Advisor at U.S. Centers for Disease Control and Prevention (CDC).

¹⁶ To see PAHO's press release on this event, please visit: <https://www.paho.org/en/news/3-3-2022-government-canada-through-paho-donates-vaccine-refrigerators-dominican-republic>

Table 2. Prices for Vaccines Purchased through the PAHO Revolving Fund, 2022 (prices in US\$)

VACCINE		DOSES PER VIAL	AVERAGE COST PER DOSE
BCG	India origin	10	\$0.3300
	India origin	20	\$0.1650
	Denmark origin	10	\$0.8250
	Denmark origin	20	\$0.4125
Bivalent oral polio (bOPV)		10	\$0.1742
		20	\$0.1252
DTP		10	\$0.1742
DT		10	\$0.1650
DTaP triple acellular		1	\$16.8500
DTaP-IPV	Pre-filled syringe	1	\$13.2300
DTaP-IPV-Hib	Pre-filled syringe	1	\$16.3100
DTaP-IPV-Hep B-Hib		1	\$21.1200
DTP Hib	Lyophilized	1	\$3.0000
DTP Hepatitis B Hib	Liquid	1	\$1.0583
Hepatitis A	Pediatric	1	\$7.9896
	Adult	1	\$12.3510
Hepatitis B	Adult	10	\$0.3000
	Adult	1	\$0.8000
	Pediatric	1	\$0.5748
Hib	Lyophilized	1	\$2.1500
Human papillomavirus (HPV)	Quadrivalent	1	\$10.4800
Inactivated Polio (IPV)	Pre-filled syringe	1	\$5.5000
		5	\$2.5000
	Sabin	5	\$1.5000
Measles-rubella		1	\$2.7200
		10	\$0.7790
Measles/mumps (Jeryl-Lynn strain)/rubella		1	\$5.4249
Measles/mumps (Zagreb strain)/rubella		1	\$3.2400
		5	\$1.6160
		10	\$1.5530
Meningococcal ACYW135		1	\$20.3000
Pneumococcal conjugate	10-valent (PCV-10)	1	\$12.8500
	13-valent (PCV-13)	1	\$14.5000

VACCINE		DOSES PER VIAL	AVERAGE COST PER DOSE
Pneumococcal polysaccharide	23-valent	1	\$9.4900
Rabies human use (vero cells)	Vial or pre-filled syringe	1	\$10.2041
Rotavirus (liquid)	2-dose immunization schedule	1	\$6.5000
Seasonal influenza quadrivalent northern hemisphere 2021–2022	Adult - Republic of Korea origin (pre-filled syringe)	1	\$5.8000
	Adult - France origin (pre-filled syringe)	1	\$6.0000
Seasonal influenza trivalent northern hemisphere 2021–2022	Adult - Republic of Korea origin	1	\$3.4000
	Adult - Republic of Korea origin	10	\$2.6400
	Pediatric - Republic of Korea origin	20	\$1.3200
	Adult - France origin	10	\$3.5900
	Adult - France origin (pre-filled syringe)	1	\$4.5000
Seasonal influenza trivalent southern hemisphere 2022	Pediatric - France origin	20	\$1.7950
	Adult - Republic of Korea origin (pre-filled syringe)	1	\$3.4500
	Adult - Republic of Korea origin	10	\$2.7700
	Pediatric - Republic of Korea origin	20	\$1.3850
	Adult - France origin	10	\$2.9700
	Pediatric - France origin	20	\$1.4850
	Adult - Argentina origin (pre-filled syringe)	1	\$3.8000
	Adult - Australia origin	10	\$2.7500
	Pediatric - Australia origin	20	\$1.3750
	Adult - Brazil origin	10	\$2.8500
Seasonal influenza quadrivalent southern hemisphere 2022	Pediatric - Brazil origin	20	\$1.4250
	Adult - Republic of Korea origin	1	\$5.1000
	Adult - Republic of Korea origin	10	\$4.6000
Td	Adult - France origin	10	\$5.0000
	Adult	10	\$0.1108
Tdap triple acellular		1	\$11.0406
Typhoid polysaccharide		5	\$5.0000
Varicella	OKA strain - USA origin	1	\$18.4800
	OKA strain - Republic of Korea origin	1	\$13.9000
	MAV/06 strain	1	\$12.5000
Yellow Fever	Brazil origin	10	\$1.2800
	France origin	10	\$1.6700

Table 3. Prices for Syringes Purchased through the PAHO Revolving Fund, 2022 (prices in US\$)

CONVENTIONAL SYRINGES		
SIZE	PACKED PER CASE	PRICE PER UNIT*
1cc 22G x 1 1/2" (Qatar origin)	1,500	\$0.0230
1cc 22G x 1 1/2" (China origin)	2,400	\$0.0380
	3,000	\$0.0310
1cc 23G x 1" (Qatar origin)	1,500	\$0.0207
1cc 23G x 1" (China origin)	3,200	\$0.0350
	3,000	\$0.0310
1cc 23G x 1" (India origin)	2,000	\$0.0263
3cc 23G x 1" (India origin)	2,000	\$0.0220
3cc 23G x 1" (China origin)	1,800	\$0.0310
	2,400	\$0.0380
3cc 23G x 1" (UAE origin)	1,800	\$0.0305
5cc 22G x 1 1/2" (China origin)	1,200	\$0.0316
5cc 22G x 1 1/2" (UAE origin)	1,800	\$0.0315

AUTO-DISABLE SYRINGES		
SIZE	PACKED PER CASE	PRICE PER UNIT*
0.3cc 23G x 1" (China origin)	1,800	\$0.1380
0.3cc 23G x 1" (UAE origin)	3,000	\$0.0400
K1 design: 0.3cc 23G x 1"	2,000	\$0.0388

AUTO-DISABLE SYRINGES CONTINUED		
SIZE	PACKED PER CASE	PRICE PER UNIT*
0.5cc 22G x 1 1/2" (UAE origin)	3,000	\$0.0480
0.5cc 22G x 1 1/2" (China origin)	3,000	\$0.0525
0.5cc 23G x 1" (UAE origin)	3,000	\$0.0338
0.5cc 23G x 1" (China origin)	3,000	\$0.0290
	1,800	\$0.0865
0.5cc 25G x 5/8" (UAE origin)	3,000	\$0.0370
0.5cc 25G x 5/8" (China origin)	3,000	\$0.0380
K1 design: 0.5cc 23G x 1" (China origin)	3,000	\$0.0420
K1 design: 0.5cc 23G x 1" (India origin)	2,000	\$0.0317
Retractable: 0.5cc 23G x 1"	800	\$0.1600
0.1cc 27G x 3/8" (UAE origin)	3,000	\$0.0380
0.1cc 27G x 3/8" (China origin)	3,000	\$0.0348
0.05cc 26G x 3/8" (UAE origin)	3,000	\$0.0380
0.05cc 26G x 3/8" (China origin)	3,000	\$0.0380
Retractable: 0.05cc 26G x 3/8"	3,000	\$0.1000

* These are indicative free carrier (FCA) prices for planning purposes, and they do not include international logistics, insurance, and other operational costs. The actual price and other relevant costs will be clarified in procurement documents like price estimates.

UAE: United Arab Emirates

Source: www.paho.org/revolvingfund

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8 Immunization Newsletter Volume XLIV Number 1 April 2022 Pan American Health Organization

First Annual Meeting of the Measles and Rubella Elimination Regional Monitoring and Re-Verification Commission

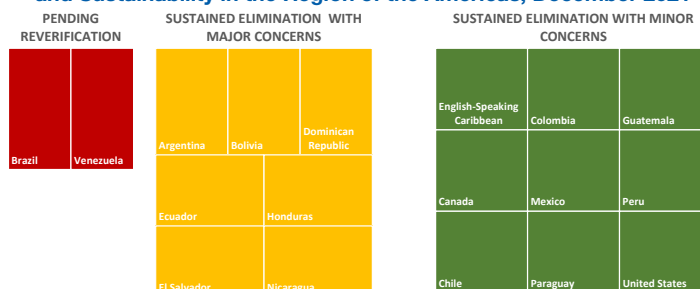
The Pan American Health Organization (PAHO) Regional Monitoring and Re-Verification Commission (RVC) held their first annual meeting in early December 2021. During this meeting, the Commission concluded that Member States presented sustained rubella and congenital rubella syndrome (CRS) elimination, while Brazil and Venezuela are pending re-verification for measles elimination (Figure 7). The Commission acknowledges the tremendous efforts implemented by Venezuela to interrupt endemic measles virus transmission in 2019, but concerns were raised regarding sustainability due to large immunity gaps. Brazil, on the other hand, continues to have endemic measles virus circulation.

The remaining countries in the Region were stratified by the Commission in two subcategories: (a) sustained with major concerns and (b) sustained with minor concerns. The pressing need to implement high-quality follow-up vaccination campaigns was considered a key factor to group countries in the subcategory of "sustained with major concerns," given the impact of the pandemic on routine immunization services and the presence of large pockets of susceptible individuals. Gaps in epidemiological surveillance have also been identified. The degree and magnitude of these gaps vary across countries and will require implementation of tailored strategies soon.

To this end, countries were encouraged to be prepared and proactive for inevitable measles or rubella outbreaks. Countries that had not lowered the age of the second dose to 18 months were urged to do so. Likewise, countries with a "specific" case definition for measles and rubella suspected cases were asked to switch to a more sensitive case definition as recommended by PAHO's Technical Advisory Group (TAG) on Vaccine-Preventable Diseases (symptoms including both fever and maculopapular rash). Vigilance in epidemiological surveillance in high-risk areas was encouraged, along with bridging immunity gaps with indiscriminate vaccine campaigns as soon as possible.

The Commission also recognized the tremendous opportunities to integrate activities to sustain measles and rubella elimination with COVID-19 prevention and control efforts. If done wisely, such integration should help improve vaccination coverage and surveillance performance for these diseases of mandatory notification. Countries provided examples where this could be successfully done amid the COVID-19 pandemic (e.g., Mexico's implementation of the indiscriminate

Figure 7. Status of Re-Verifying Measles and Rubella Elimination and Sustainability in the Region of the Americas, December 2021



Costa Rica, Cuba, Haiti, Panama, Uruguay, and the French Territories did not submit annual reports.

Source: Source: Annual Meeting of the Measles and Rubella Elimination Regional Monitoring and Re-Verification Commission (virtual session), 30 November-2 December 2021.

follow-up measles, rubella, and CRS vaccination campaign earlier this year).

The quality of national elimination reports presented to this meeting was consistently outstanding, rich in data and other complementary evidence. Nearly all PAHO Member States provided annual reports using the PAHO template. Only five countries and the French Territories failed to comply and did not submit reports. The next annual meeting will take place in late 2022 and will review data from 2020-2021.

Finally, this meeting provided the opportunity to systematize and formalize annual country report reviews of the national progress made toward sustaining the Region as free of endemic measles and rubella transmission. To this end, the published *Regional Framework for the Monitoring and Re-Verification of Measles, Rubella, and Congenital Rubella Syndrome Elimination in the Americas*¹⁷ was used to guide national reporting and is the first regional framework of its nature at the global level. In addition, PAHO provided a standardized template to facilitate revision by members of the Commission. ■

¹⁷ Regional Framework for the Monitoring and Re-Verification of Measles, Rubella, and Congenital Rubella Syndrome Elimination in the Americas, published by PAHO and is available from: <https://iris.paho.org/handle/10665.2/55074#:~:text=The%20Regional%20Framework%20for%20the,for%20monitoring%20and%20re%20verification>