

Thirty-Seventh Meeting of the Caribbean Immunization Managers

30-31 October 2023, Belize City, Belize

Final Report



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1. Abbreviations and acronyms

AFP	non-polio acute flaccid paralysis
CITAG	Caribbean Technical Advisory Group on Immunization
cVDPV	variant poliovirus
cVDPV1	variant poliovirus Type 1
cVDPV2	variant poliovirus Type 2
DPT	diphtheria, tetanus toxoid and pertussis
EPI	Expanded Program on Immunization (PAHO)
M/R	measles and rubella
mRNA	messenger ribonucleic acid
PAHO	Pan American Health Organization
VPD	vaccine-preventable disease
WHO	World Health Organization
WPV1	wild poliovirus type 1

2. Introduction

The Thirty-Seventh Meeting of the Caribbean Immunization Managers was held on 30–31 October 2023 at the Best Western Belize Plus Biltmore Plaza in Belize City, Belize. Sixty-five participants convened from 22 countries and territories of the British West Indies and the Dutch Caribbean. Participants included representatives from the ministries of health, Caribbean Public Health Agency, Caribbean Community, and Pan American Health Organization/World Health Organization (PAHO/WHO).

The opening ceremony was moderated by Lisa Bayley, Specialist, PAHO Communications for Health Promotion. Welcoming remarks were made by Karen Lewis-Bell, PAHO/WHO Representative in Belize; Daniel Salas, Executive Manager, PAHO Special Program on Comprehensive Immunization; Kevin Bernard, Minister of Health and Wellness, Belize; and Edwin Bolastig, PAHO Health Systems and Service Advisor, PAHO. The meeting itself was one of historic relevance, given the presence of all the advisors of PAHO's Expanded Program on Immunization (EPI) since program implementation in 1977; these included Henry Smith, Beryl Irons (online), Karen Lewis-Bell, and Karen Broome.

The **overall objective** of the meeting was to analyze and review the achievements and challenges of 2022, with a view to reversing the gains that were lost over the two years since. In addition, the event provided an occasion to share experiences relating to the immunization program and to plan 2024 activities.

Specific objectives included the following:

- a) Review of EPI status in the Region of the Americas and the Caribbean to identify areas that require strengthening.
- b) Discussion on country status with regard to surveillance and management of vaccine-preventable diseases (VPD) and the areas that require strengthening in each.
- c) Immunization update and review of the needs of country EPIs following introduction of COVID-19 vaccines.
- d) Information update of selective topics of common interest relating to immunization, service delivery, and VPD surveillance.
- e) Sharing of country experiences in order to reverse lost gains of the past two years.

Peter Figueroa of the Regional Technical Advisory Group on Immunization and President of the Caribbean Technical Advisory Group on Immunization (CITAG) chaired the meeting. He also offered a presentation following the opening ceremony.

3. Universal Vaccination Coverage

3.1 Expanded Program on Immunization in the Americas: Update

Despite countries and territories of the Americas having managed to halt the decline in immunization coverage by 2022, 2.2 million children nevertheless remain under- or unvaccinated. As such, there needs to be a reconsideration of immunization programs in view of the emerging challenges. The region is at an advantage after having collaborated in multiple vaccine programs and new technologies targeting various groups. Conversely, there is a significant emergence of anti-science and anti-vaccine groups with superior coordination. General public perception, in general, is that vaccines against disease are of no or are of low risk, and that global warming and population migration tend to aggravate the risk of disease and infections. Furthermore, country

agendas have shifted in recent years due to competing priorities (e.g., growing financial constraints and outbreaks of arboviral diseases). As a result, never has it been more essential for national technical advisory groups to undertake multidirectional and comprehensive analyses of immunization programs. Such programs must integrate innovative and complementary strategies into frameworks so as to address the challenges. Recommendations should be based on the best available evidence and decisions should be prioritized by way of existing tools.

3.2 Expanded Program on Immunization in the Caribbean: Overview

Vaccination coverage rates in countries of the Caribbean have been concerningly declining over the past 10 years, having accelerated especially during the COVID-19 pandemic. As such, at its 29th Special Meeting of 26 April 2023 in Nassau, the Bahamas, the Council for Human and Social Development adopted the Declaration of Nassau. The Declaration commits governments “to take evidence-informed measures to strengthen national immunization programs in the Caribbean.”¹ The success of this statement will depend on not only the technical support, guidance, and strategic funding that PAHO can offer, but also on the commitment of EPI managers and national immunization program staff, as well as unwavering political support to enable the improvement of vaccination coverage.

Diphtheria, tetanus toxoid and pertussis (DTP) coverage increased by three percentage points in 2022 as compared to 2021, and by four and two percentage points for measles/mumps/rubella (MMR1) and MMR2, respectively. Sixty-four percent of English-speaking countries and territories in the Caribbean reported DTP3 coverage at over 90% in 2022, with only one country having reported coverage at below 80% compared to three in 2021. Coverage of the first measles vaccine also demonstrated an improvement, with 11 of 22 countries reporting in excess of 90% in 2022 compared to 6 in 2021.

4. Sustaining Eradication of Measles, Rubella, Congenital Rubella Syndrome, and Polio

4.1 Global, Regional, and Caribbean Status of Elimination of Measles and Rubella

The global distribution of measles decreased during the period 2020–2021; however, incidence of the disease has increased in five WHO regions since 2022, at the exclusion of the Americas where the incidence at the regional level is lower than five measles cases per million population. The incidence of rubella also decreased during the COVID-19 pandemic, although there has been a recent resurgence of outbreaks mainly in those countries where the relevant vaccine has yet to be introduced. The Region of the Americas is the only one that has verified and sustained the elimination of rubella since 2015. At the global level, 41% of PAHO’s Member States have verified the elimination of measles and 49% of rubella. Brazil stands as the only country having evidence of an interruption in the transmission of the endemic measles virus.

Recommendations in 2022 from the Measles and Rubella Elimination Regional Monitoring and Re-Verification Commission included the undertaking of periodic active-case searches, with an

¹ PAHO. 2023. “Countries of the Caribbean agree to strengthen national immunization programs through Declaration of Nassau.” 27 April (online). www.paho.org/en/news/27-4-2023-countries-caribbean-agree-strengthen-national-immunization-programs-through#:~:text=The%20Declaration%2C%20which%20was%20signed,health%20policy%20agendas%20through%20political.

emphasis on high-risk areas and expansion into primary healthcare facilities. Searches should be externally monitored and supervised and should take into account other VPDs; healthcare workers require sensitization and retraining on measles-rubella outbreak responses; and a defaulter tracking strategy should be introduced during vaccination outreach activities.

4.2 Global, Regional, and Caribbean Status of Polio Eradication

Afghanistan and Pakistan are the only two countries where wild poliovirus type 1 (WPV1) is endemic. In 2022, however, there was only one case reported in Malawi and eight in Mozambique, the latter experiencing an outbreak as a result of the virus having been imported from Malawi. Cases of variant poliovirus (cVDPV) continue to challenge efforts to eradicate the disease. With regard to the Type 1 variant (cVDV1) in 2022, there were 186 cases reported; these comprised 145 in the Democratic Republic of Congo, 14 in Madagascar, 22 in Mozambique, 4 in Malawi, and 1 in Yemen. That same year, 675 cVDPV2 cases were reported in 20 countries, with 1 in Israel.

The Region of the Americas has experienced an increasing risk of polio outbreak following importation of WPV1, cVDPV, and the emergence of VDPV1 and VDPV Type 3 (VDPV3). Many countries continue to have low immunization coverage and underperforming surveillance systems. Data from 29 PAHO Member States and five territories show a preliminary VDPV3 regional immunization rate of coverage for 2022 at 83%. There is, however, heterogeneity in the reporting of countries at the national level, as well as significant gaps at the municipal level. Only 10 countries in the region have reported a VDPV3 coverage rate at greater than 95%, while nine are below 80%. The regional acute flaccid paralysis (AFP) rate was 1.32 in 2022, of which 92% cases were investigated within 48 hours following announcement and 77% had an adequate sample.

4.3 Vaccine-Preventable Diseases: Laboratory Surveillance and Recommendations

Measles testing increased by 133% in 2022 and 72% in 2023, while rubella testing increased by 117% in 2022 and 7% in 2023. Polio testing decreased by 23% in 2022, but 2023 saw an increase of 61.5%. Arbovirus and influenza samples continue to be underutilized for measles and rubella (M/R). COVID-19 testing has now declined significantly. There has been no monkeypox (MPOX) outbreak in the period 2022–2023. Significant concern, however, relates to sample types, shipping, and documentation, in which case there is a need for improved data sharing in order to perform a comprehensive overview of VPDs.

4.4 Vaccine-Preventable Diseases: Surveillance in the Caribbean

The Caribbean continues to struggle in meeting its surveillance targets for rash and fever and AFP at 2/100,000 population and 1/100,000 children under the age of 15 years, respectively. With a suspected M/R rate of 0.9 and an AFP rate of 0.38 in 2022, Caribbean countries and territories continue to fall below target, which calls for focus to be placed on strengthening their epidemiological and laboratory surveillance operations to meet all key performance indicators. This will require full collaboration and coordination between Member States and the Caribbean Public Health Agency for adequate collection, timely reception, and analyses of samples. Also recommended are audits of surveillance systems of those countries with over 100,000 children under the age of 15.

4.5 Active Institutional and Community Searches for Cases of Polio, Measles, and Rubella

Active AFP and M/R case searches relate to a strategy of surveillance applied by healthcare services, laboratories, and communities, whereby health teams are sent to the source where a retrospective search is made of probable AFP and suspected M/R cases and establishment is made as to whether or not such cases have been routinely reported and entered into the surveillance system. In the instance of a silent or low-rate setting, a quality active case search should take place every three months with the international statistical classification of disease as ICD-10 or ICD-11. Community active searches should take place in priority areas, using images to enable case identification. Evidence for discarding a challenging case should be comprehensively documented by an external committee. To improve surveillance, monitoring should be affected consistently, continuously, and in a timely manner.

4.6 Country Report on Surveillance of Fever and Rash and the Status of Indicators

The recommended strategic line of action to sustain the elimination of M/R and congenital rubella syndrome in the Region of the Americas is to ensure there is a sufficient capacity of epidemiological surveillance systems and a monitoring of the quality and sensitivity of these diseases. The surveillance target for fever and rash surveillance is a rate of at least 2 per 100,000 population. Challenges, however, indicate that there is a general shortage of trained nurses, a tendency for complacency, and a reluctance to deal with additional paperwork.

The Case of Barbados:

Barbados' Ministry of Health and Wellness nevertheless has taken the initiative to reintroduce the training of nurses in public health; continued to educate and resensitize key stakeholders; implemented activities to maintain the relevance of measles; and raised public awareness. Weekly social media reminders have been an integral part of the ministry's efforts, particularly in acknowledging those partners who have successfully contributed to the process. As such, there have been no confirmed cases of measles in Barbados since 1991 and no case of rubella since 2001. Barbados met its fever and rash surveillance target in 2022 and 2023 and has maintained its M/R elimination status in 2022.

4.7 Country Report on Surveillance of Acute Flaccid Paralysis and the Status of Indicators

The Case of Belize:

Belizean national surveillance was established in 1991 with an emphasis on rash and fever, AFP, and neonatal tetanus, whereby AFP surveillance is the country's only current method of observation. From 2019 to 2023, three cases have occurred, with one under 15 years of age (2019); three, with two under 15 years of age (2020); no cases in 2021; three cases, with three under 15 years of age (2022); and three, with two under 15 years of age (2023). All cases were discarded, according to the final diagnosis. Belize accounted for a national polio vaccination coverage rate of less than 95% during the COVID-19 pandemic.

The key challenges of maintaining indicators for polio surveillance are (i) shortage of health care workers, (ii) incomplete filling of investigation forms, and (ii) the delay in sample collection, purchase orders, and shipments. Recommendations for improvement include the following:

- a) Ensure there are sensitive surveillance systems in the public and private sectors by actively carrying out case searches.
- b) Improve staff skills in the detection and management of polio cases through the training of staff and providing refresher courses.

- c) Ensure investigation, collection, and shipment of samples in a timely manner to the referral lab for testing.
- d) Confirm or discard any suspected polio cases in a timely manner and follow up those bona fide cases.
- e) Ensure health facilities have the necessary supplies for the prevention, management, and control of suspected polio cases.
- f) Identify children who have yet to be immunized with complete doses of the polio vaccine.
- g) Improve social communication regarding the safety and benefits of the polio vaccine.

5. Strengthening Routine Immunization Programs

5.1 Vaccine Safety Surveillance in the Caribbean: Update

Prior to the introduction of the various COVID-19 vaccines, a regional survey on the maturity of ESAVI surveillance systems was undertaken. This showed that although countries had the necessary personnel in place and some guidance on how to conduct surveillance, the fact that there was a scarcity of specialist manuals and national regulations demonstrated the need for additional support. Furthermore, activities relied on paper documentation and, thus, insufficient data on cases; this led, in turn, to an inability to respond to essential vaccine safety requirements. Only 13% of those countries interviewed (23) had actively developed any surveillance activities. In an effort to respond to the issues, countries began to collaborate with PAHO to develop a regional strategy to strengthen ESAVI surveillance systems; increase the capacities of 11 countries through training on the system's principles; develop national manuals; and implement digital transformation. In addition, five participating Caribbean countries established a regional database to enable the sharing of information with PAHO, assist in the monitoring of ESAVI; and benefit from data quality assessments that would assist in improving future strategies. ESAVI surveillance systems should be given priority in face of:

- a) current public health risks posed by new as well as older infectious diseases;
- b) safety monitoring needs imposed by new vaccines;
- c) testing of new administration methods (e.g., inhalation, electroporation, oral);
- d) further development of messenger ribonucleic acid (mRNA) vaccines; and
- e) new delivery systems and adjuvants, and the damage caused by misleading information on the safety of vaccines.

The main categories of intervention to enable a move forward are advocacy, process improvement, digital information systems, and risk communication activities.

5.2 Immunization Information Systems: Progress and Challenges

A new surveillance system, VPD-SMART, which utilizes the DHIS2 software platform, is being developed by PAHO in conjunction with the University of Oslo, Norway; it will be piloted in countries in 2024. The system will allow for web-based case data collection and data warehousing and exchange. Countries at the subnational level will be able to collect individual cases through the platform and configure and analyze relevant data.

5.3 Monitoring Tool for Epidemiological Performance: Development and Implementation within the Region

Periodic assessment of national EPIs is essential to identify gaps and set priorities. The redesigned methodology of PAHO's Comprehensive Special Immunization Program is able to monitor performance of 13 national EPI components, as well as support development of a plan to implement recommendations of most urgency within the following 12 months.

6. Support for Countries to Develop and Implement Interventions to Improve Vaccination Coverage

6.1 PAHO's Revolving Fund: Update

Eighteen out of 22 countries have completed procurement of 2023 vaccines and related supplies. According to current procedure, formal payment for procurement of the material is required to avoid the risk of supply disruption. Essential products for the Region of the Americas in 2024 include the hexavalent, COVID-19, and dengue vaccines. It is important to note that the new online demand planning tool now in place is a significant milestone, whereby adequate financial analyses and budgeting of immunization programs will be essential in order to prevent any disruption to the supply chain. In parallel, through PAHO's Revolving Fund, work is being carried out on advanced options to facilitate access to its credit line. As such, a portfolio optimization and stock transition planning approach will be critical in order to shift to the new hexavalent (DTwP-Hib-HepB-IPV) vaccine. In terms of the COVID-19 vaccine, access in 2024 will require advanced demand planning, since any delay in submissions or last-minute requests will not be able to overcome the dynamics of the market. Caribbean countries, in particular, are urged to reach out to PAHO's Revolving Fund in the event they require additional support for solar cold chain equipment and other innovative technologies for immunization in the supply chain.

6.2 Results and Analysis of Measles/Rubella and Polio Risk Assessments in Belize

A presentation made during the opening ceremony illustrated the results of a review, conducted in Belize, of the Polio Risk Assessment and the Measles/Rubella Risk Assessment tools. Both tools were briefly described, including how assessment results should be interpreted. Measles risk assessment results, on the one hand, call for priority intervention in Belize's District of Toledo to improve the country's surveillance and coverage rate. Results of the Polio Risk Assessment Tool, on the other hand, showed that the country's town of Corozal is doing well, despite the need for the coverage rate of all districts to be improved.

6.3 Vaccination Coverage: Situational Analysis

The Case of St. Lucia:

Saint Lucia's national immunization program has recorded a decrease in overall vaccination coverage over the last two years. Although the Covid-19 pandemic significantly has exacerbated the situation, vaccine hesitancy coupled with infodemic is contributing to programmatic challenges, thus casting doubt on the efficacy of vaccines in general. The national immunization program also has noted a decrease in the coverage rate of the third DTP3 dose, from 91.8%, 79.6%, and 75% in 2019, 2021, and 2022, respectively. Coverage for other antigens has been reduced in the past years.

Public campaigning on immunization must be an ongoing activity to increase public awareness, confidence, and vaccine uptake among the general population. There also is a need to intensify

community outreach, conduct continuous public sensitization and education on the importance of vaccines and its safety, and strengthen communication to redress vaccine hesitancy. Human resources within St. Lucia's healthcare system are at a critical stage, with multiple staff responsibilities and heavy workloads, all of which hinder the efficient and effective execution of adequate supervision and monitoring processes. Despite these challenges, St. Lucia has demonstrated a notable improvement in AEFI/ESAVI reporting as well as a culture for disclosure. Nevertheless, the training of healthcare staff in disease surveillance must be sufficiently strengthened to establish and sustain a robust and effective national Immunization program.

6.4 Vaccine-Preventable Disease Surveillance: Situational Analysis

The Case of Trinidad and Tobago:

Trinidad and Tobago have a history of achievement as well as challenge; it has managed to reach vaccination coverage despite difficulty in meeting its surveillance indicators. It is a complex process, in any event, to be able to understand the determinants that influence a decline in meeting VPD surveillance indicators—one that will require broad intervention strategies. The Measles Outbreak Response Simulation Exercise, held in November 2022, highlighted that Trinidad and Tobago must streamline and formalize existing systems. Furthermore:

- a) sampling for measles, CRS, and AFP is essential;
- b) clinically suspect cases should not be delayed pending laboratory testing;
- c) symptoms should be included in laboratory submissions;
- d) clinicians should be sensitized to be able to recognize cases of M/R;
- e) clinical workforce should be educated on how testing contributes to sustaining elimination of M/R; and
- f) evaluation and monitoring should be central to best practices in immunization program management.

The Case of The Bahamas:

The Bahamas' EPI Unit, in partnership with the National Surveillance Unit, is committed to ongoing monitoring, investigation, and prevention of VPDs. In the wake of the COVID-19 pandemic, some ground was lost in vaccine coverage. With the support of internal and external stakeholders, efforts are now underway to ensure clinical staff are prepared to play their roles and that the community is made publicly aware and ultimately protected by immunization.

6.5 Group Work

Participants were divided into five groups, representing five countries, with the objectives of developing an intervention to improve vaccination coverage rates and strengthening VPD surveillance at the district level. Targets were established to introduce and achieve vaccination coverage for human papillomavirus (HPV) and hepatitis B vaccine (HepB-BD).

6.6 Presentation of Awards

Caribbean Surveillance Shield:

The annual Caribbean Surveillance Shield Award recognizes countries that have performed outstandingly in their surveillance of VPDs during the previous year. 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 until a new country has been selected to receive the award. For 2022, the first-, second-

, and third-place awards for VPD surveillance were won by Belize, Guyana, and Barbados, respectively.

Henry Smith Cup:

The Henry C. Smith Cup is in honor of Mr. Henry C. Smith, the first PAHO-EPI technical officer for the Caribbean subregion, whose service to the area spanned 18 years. The award is given to the country whose national immunization program has achieved the most improvement during the past year. Turks and Caicos Islands received the Henry Smith Cup award in 2022 based on its vaccination coverage rate.

7. Caribbean Immunization Technical Advisory Group: Recommendations

Recommendations are as follows:

- CITAG noted that as of December 2022, DPT3 coverage for the Caribbean was 94%. MMR1 and MMR2 coverages were 91% and 83%, respectively, showing an unsatisfactory decrease of 8%. Surveillance of fever/rash and AFP also proved inadequate. Noted, however, was that significant work was being done to catch up with immunizations following the erosion of EPI coverage due to the COVID-19 pandemic. Measures to improve coverage and surveillance indicators were discussed in depth.
- EPI managers and their teams; surveillance officers and laboratory staff; and stakeholders and partners were commended for their commitment and dedicated efforts. All committed to improving EPI coverage and surveillance to sustain elimination of childhood VPDs in the Caribbean.
- CITAG stressed the importance of achieving a 95% coverage rate of all childhood vaccines on a national basis, as well as in all districts, in order to sustain elimination gains in the Caribbean and to protect against importation of VPDs. Special effort must be made to ensure 95% coverage of the MMR2 vaccine.
- It is critical to improve active AFP and fever/rash surveillance, with delivery in a timely manner of adequate samples for laboratory analyses and case information. This is essential to enable the rapid identification of imported cases as well as verification of a sustained elimination of polio and MMR in the Caribbean.
- The need for a holistic electronic information system that will integrate an immunization register, VPD surveillance, and ESAVI was agreed as being of priority. Countries will benefit from a manual that outlines the steps required to introduce or strengthen such an electronic information system.
- CITAG welcomed the introduction of a self-assessment tool to monitor EPI programs. Further piloting and refinement of the tool should take into account specific conditions in the Caribbean.
- Countries were urged to ensure timely payment to PAHO's Revolving Fund; appreciation was expressed regarding the excellent work of the fund. Countries look forward to the availability of the hexavalent whole-cell pertussis vaccine and must diligently prepare in advance for its introduction.

- The value of vaccines must be promoted to build confidence among health providers, key stakeholders, the media and, overall, the public.
- CITAG stressed the need for governments to invest in and build the necessary infrastructure for the vaccination of adolescents and adults in the Caribbean. This will facilitate ready access to vaccines across the life course. Success only will be feasible if there is widespread involvement of pediatricians and other specialists, general practitioners, nurses, pharmacists, and general healthcare staff in public and private health systems, alike.
- CITAG has urged governments to review and introduce relevant policies and regulations to strengthen their legislative frameworks in support of immunization.



Participants at the 37th Meeting of the Caribbean Immunization Managers Belize City, Belize, 2022. Credit: PAHO.