



POLIO GLOBAL
ERADICATION
INITIATIVE

Polio Eradication Strategy 2022–2026

**Delivering on
a promise**



BILL & MELINDA
GATES foundation





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FOREWORD

The promise of a polio-free world has been a driving force behind the Global Polio Eradication Initiative (GPEI), contributing to critical health gains over the past three decades. Indeed, before the coronavirus disease (COVID-19), polio eradication signified to many what the world could achieve by joining together to protect and promote the health of all children.

As the world – and especially country health systems – adjusted to a new global health threat in COVID-19, the GPEI launched an intensive review to identify barriers to eradication and develop a new strategy to deliver on the promise of a polio-free world. The complexity of the task grew as the programme had to take inventory of challenges faced in the years before COVID-19 and define solutions that will work in a world perhaps forever altered in the wake of COVID-19. Without a doubt, the single greatest asset for this exercise has been more than 300 stakeholders who, through interviews, workshops and reviews, lent knowledge and insight into the new and unfamiliar terrain of eradicating polio while mitigating the risks and responding to the needs of a global pandemic.

Over the past few months, it has become clear that to place the GPEI back on the path to eradication, we must operate with an emergency tempo while also becoming more accountable to the collective partnership, more responsive to the intersecting needs of impacted communities, more welcoming of intersecting fields of expertise, and more integrated with social and health programmes that deliver critical interventions to vulnerable populations.

The **Polio Eradication Strategy 2022–2026** reflects the kind of integrated approaches that will be required to deliver on the promise of eradication.

Through this new strategy, we believe the GPEI has re-envisioned its relationship with governments, deepened its commitment to polio-affected communities, made changes to empower and safeguard the frontline workforce, and expanded its partnerships to achieve broader impact in polio-priority geographies, alongside key innovations that will improve detection and response. The strategy also sets clear goals for strengthening the programme's gender-responsiveness, in recognition that the more women's meaningful participation and empowerment becomes a cornerstone of GPEI efforts, as outlined in its **Gender Equality Strategy**, the more progress towards eradication will be made. In further alignment with the Immunization Agenda 2030 (IA2030) and Gavi, the Vaccine Alliance's strategic plan (Gavi 5.0), the new strategy offers a more holistic approach to immunization and shares with IA2030 its principles of being people-centred, country-owned, partnership-based and data-guided.

With an updated strategy and a defined path to eradication, we must accelerate progress as we enter the 2022–2026 period. Stakeholders articulated the challenge well during the consultation process when they said, "Now is the time to do not just the good things or the hard things, but the very hard things."

As members of the Polio Oversight Board (POB), we join with the broader partnership in expressing our commitment to greater accountability on the path to eradication. In our meetings, POB members will routinely review the strategy's new monitoring and evaluation and risk management framework. We stand with you all, rededicated to polio eradication.

Working together and in close partnership with impacted countries, we can make up lost ground against polio during the COVID-19 pandemic, while continuing to leverage the programme's infrastructure to support fragile health systems. Even as COVID-19 continues to pose challenges to health programmes around the world, we recognize an opportunity to come back stronger in our effort to create a healthier and more equitable world, which includes eradicating one of the cruellest infectious diseases and thereby ensuring polio is no longer a threat to children and families anywhere in the world.

The GPEI Polio Oversight Board



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*President, Global Development Division,
Bill & Melinda Gates Foundation
2021 Chair of the Polio Oversight Board*



Mike McGovern
*Chair, International PolioPlus Committee,
Rotary International*



Seth Berkley
*Chief Executive Officer, Gavi, the Vaccine
Alliance*



Tedros Adhanom Ghebreyesus
WHO Director-General



Henrietta Fore
*Executive Director, United Nations Children's
Fund (UNICEF)*



Rochelle Walensky
*Director, US Centers for Disease Control and
Prevention (CDC)*

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The GPEI engaged a broad set of stakeholders throughout the development of *Polio Eradication Strategy 2022–2026: Delivering on a promise*. The engagement process benefited from the generous inputs of country teams, national governments, donors and over 40 external and internal expert groups, many that encouraged the partnership to embrace a more holistic approach to polio eradication (see **Annex A**).

The contributions of all participants resulted in a strategy that seeks to overcome the remaining challenges through a recognition that polio eradication depends upon a spectrum of partners and a diversity of actors.

For their invaluable contributions to world health by vaccinating children and delivering other health services to their communities, the GPEI dedicates this strategy to frontline workers, and particularly those workers who have lost their lives. The strategy is also dedicated to children, adolescents and adults affected by polio and to the polio-affected advocates who have used their voice and experience to play a key role in the eradication effort.



ACRONYMS AND ABBREVIATIONS

| | | | |
|----------|--|----------|--|
| AEFI | Adverse event following immunization | NGO | Nongovernmental organization |
| AFP | Acute flaccid paralysis | nOPV1 | Novel oral polio vaccine type 1 |
| bOPV | Bivalent oral polio vaccine | nOPV2 | Novel oral polio vaccine type 2 |
| C4D | Communication for development | nOPV2 WG | Novel Oral Polio Vaccine Type 2 Working Group |
| COVID-19 | Coronavirus disease (2019) | nOPV3 | Novel oral polio vaccine type 3 |
| CSO | Civil society organization | NPAFP | Non-polio acute flaccid paralysis |
| cVDPV | Circulating vaccine-derived poliovirus | OPV | Oral polio vaccine |
| cVDPV1 | Circulating vaccine-derived poliovirus type 1 | OPV2 | Oral polio vaccine type 2 |
| cVDPV2 | Circulating vaccine-derived poliovirus type 2 | ORPG | Outbreak Response and Preparedness Group |
| cVDPV3 | Circulating vaccine-derived poliovirus type 3 | PCS | Post-Certification Strategy |
| EI | Essential immunization | PEF | Poliovirus-essential facility |
| EOC | Emergency operations centre | PHC | Primary health care |
| EPI | Expanded Programme on Immunization | POB | Polio Oversight Board |
| ES | Environmental surveillance | PQ | Prequalification |
| EUL | Emergency Use Listing | PRC | Polio Research Committee |
| GAPIII | Global Action Plan to minimize post-eradication poliovirus facility-associated risk, third edition | PSEA | Protection from sexual exploitation and abuse |
| GCC | Global Commission for the Certification of the Eradication of Poliomyelitis | R&D | Research and development |
| GCC-CWG | Containment Working Group of the Global Commission for the Certification of the Eradication of Poliomyelitis | SAGE | Strategic Advisory Group of Experts on Immunization |
| GIS | Geographic information system | SC | Strategy Committee |
| GPEI | Global Polio Eradication Initiative | SIA | Supplementary immunization activity |
| GPLN | Global Polio Laboratory Network | SOP | Standard operating procedure |
| HSS | Health system strengthening | TAG | Technical Advisory Group |
| IA2030 | Immunization Agenda 2030 | tOPV | Trivalent oral polio vaccine |
| IHR | International Health Regulations | UNICEF | United Nations Children's Fund |
| IMB | Independent Monitoring Board | VAPP | Vaccine-associated paralytic poliomyelitis |
| IPV | Inactivated polio vaccine | VDPV | Vaccine-derived poliovirus |
| KPI | Key performance indicator | VDPV1 | Vaccine-derived poliovirus type 1 |
| LQAS | Lot quality assurance sampling | VDPV2 | Vaccine-derived poliovirus type 2 |
| M&E | Monitoring and evaluation | VLP | Virus-like particle |
| MNCAH | Maternal, newborn, child and adolescent health | VPD | Vaccine-preventable disease |
| mOPV1 | Monovalent oral polio vaccine type 1 | WHE | World Health Organization Health Emergencies Programme |
| mOPV2 | Monovalent oral polio vaccine type 2 | WHO | World Health Organization |
| mOPV3 | Monovalent oral polio vaccine type 3 | WPV | Wild poliovirus |
| mRNA | Messenger ribonucleic acid | WPV1 | Wild poliovirus type 1 |
| NAC | National authority for containment | WPV2 | Wild poliovirus type 2 |
| NEAP | National Emergency Action Plan | WPV3 | Wild poliovirus type 3 |



EXECUTIVE SUMMARY

Over the last decade, the Global Polio Eradication Initiative (GPEI) made steady progress on the path to eradication. Wild poliovirus types 2 and 3 (WPV2 and WPV3) were declared eradicated in 2015 and 2019, respectively; the World Health Organization (WHO) South-East Asia Region was declared free of poliovirus in 2014; and most recently, the WHO African Region was certified free of wild poliovirus (WPV) in August 2020. However, the final steps towards eradication have proven the most difficult.

The GPEI now faces programmatic and epidemiological challenges that demand new approaches to place the partnership and impacted countries on an emergency footing (see **Annex B**). To achieve a polio-free world, the GPEI has re-envisioned the endgame pathway with an urgent call for collective ownership and accountability across the GPEI partnership and with governments, communities and all other stakeholders.

The **Polio Eradication Strategy 2022–2026** offers a comprehensive set of actions that will position the GPEI to deliver on a promise that brought the world together in a collective commitment to eradicate polio. These actions, many of which are already under way in 2021, will strengthen and empower the GPEI to meet challenges head-on and achieve and sustain a polio-free world.

The GPEI will transform its approach in each region and country through five mutually reinforcing objectives that lay the foundation to achieve two elemental goals: *Goal One* to permanently interrupt all poliovirus transmission in the final WPV-endemic countries of Afghanistan and Pakistan, and *Goal Two* to stop circulating vaccine-derived poliovirus (cVDPV) transmission and prevent outbreaks in non-endemic countries.

Strategic objectives



Create urgency and accountability to generate greater political will by re-envisioning the GPEI's relationship with governments and systematizing political advocacy.



Generate vaccine acceptance through context-adapted community engagement that reduces refusals and increases community commitment to child immunization.



Expedite progress through expanded integration efforts with a broader range of partners in immunization, essential health care and community services.



Improve frontline success through changes to campaign operations and outbreak response operations, including the recognition and empowerment of the frontline workforce.



Enhance detection and response through sensitive surveillance that provides the programme with critical information for action.

Goal One: Permanently interrupt all poliovirus transmission in endemic countries

To protect the investment generations have made in polio eradication, **Goal One** offers a pathway towards permanently interrupting all poliovirus transmission in Afghanistan and Pakistan. The path to eradication in the final endemic countries will take:

- increased political will at all levels of government and with all local actors through a commitment to the apolitical value of polio eradication;
- a deep and enduring partnership with marginalized communities, especially those living in the highest-risk districts for polio;
- a well-functioning programme with a motivated and appropriately staffed frontline workforce who consistently deliver vaccines to the doorstep of every household or at every opportunity in areas where household access is restricted;
- an integrated service delivery approach that prioritizes essential immunization and the provision of other health services (see **Fig. 1**); and
- a continued investment in and improvement of surveillance quality and timeliness of detection.







Collectively, these approaches will improve the effectiveness of programme operations, change the way the programme listens and responds to communities, and increase local, provincial and national stakeholder commitments to eradication.

Goal Two: Stop cVDPV transmission and prevent outbreaks in non-endemic countries

Outbreaks of circulating vaccine-derived poliovirus type 2 (cVDPV2) have become a global concern, as the world has seen more annual cases of cVDPV2 than wild poliovirus type 1 (WPV1) since 2017. While 27 outbreaks have been declared closed by the GPEI in the past two years, the scale and speed of disease spread pose a risk for global polio eradication. In this context, **Goal Two** outlines strategies and tactics to put the GPEI and impacted countries on an emergency footing to stop cVDPV2 transmission. In addition to maintaining sensitive surveillance to quickly detect and rapidly respond to any poliovirus, new approaches to interrupt cVDPV2 transmission will include:

- targeted and coordinated political advocacy in outbreak countries to link polio outbreak preparedness and response to broader country health priorities;
- emergency command structures for response at the country, regional and global levels for rapid decision-making during outbreak detection and response;
- increased regional and country capacity to support surveillance and outbreak response;
- deployment of novel oral polio vaccine type 2 (nOPV2) to minimize outbreak seeding, and other new tools, approaches and partners to improve surveillance, outbreak response speed and quality, and community engagement; and
- strong coordination with in-country Expanded Programme on Immunization (EPI) and essential immunization partners to identify zero-dose and under-immunized communities in polio-priority geographies (see **Fig. 1**).¹

Fig. 1. Integration modalities and regions

| | |
|---|--|
|  | Pandemic response, including support to COVID-19 vaccine delivery, <i>wherever the GPEI is needed.</i> |
|  | Integrated service delivery in the high-risk districts of <i>Afghanistan.</i> |
|  | Integrated service delivery for priority communities in <i>Pakistan.</i> |
|  | Multi-antigen immunization campaigns to increase immunity to vaccine-preventable diseases. |
|  | Coordination with Gavi and the Expanded Programme on Immunization on the “zero-dose” initiative, including in outbreak response. |
|  | Acceleration of the transition of polio-essential functions in <i>areas where polio is already integrated.</i> |

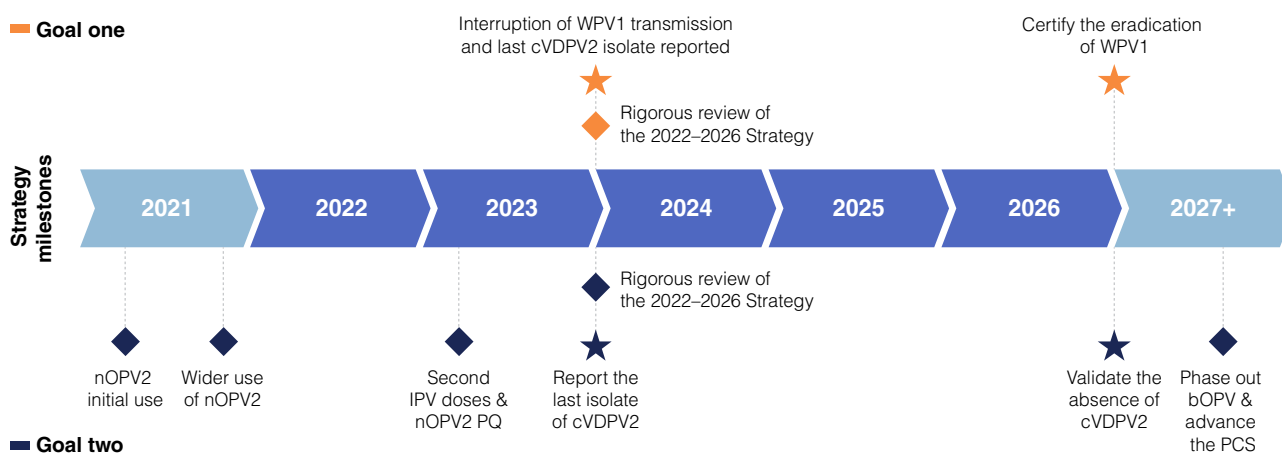
Source: WHO.

¹“Zero-dose children” are children who have received no essential immunization, often due to weakened country health systems. This attention to deprived communities where large numbers of zero-dose children reside is an opportunity for collaboration and efficiencies with Gavi. See Gavi, the Vaccine Alliance. Phase V Strategy (2021–2025). Geneva: Gavi, the Vaccine Alliance; 2019 (<https://www.gavi.org/our-alliance/strategy/phase-5-2021-2025>, accessed 9 June 2021).

Milestones and measures for success

The **Polio Eradication Strategy 2022–2026** has set aggressive benchmarks to measure progress towards eradication (see **Fig. 2**). Because of unprecedented uncertainties faced by the partnership, this timeline functions as a budget and planning tool and will be regularly appraised, with intensive programme review planned for 2023. Achieving the last milestones for WPV1 certification and cVDPV2 interruption will launch the **Post-Certification Strategy (PCS)**,² for which steps have been initiated towards long-term integrated polio surveillance, response capacity, essential immunization strengthening and containment.

Fig. 2. Polio Eradication Strategy 2022–2026 planning and budgeting timeline, 2021–2027+



bOPV = bivalent oral polio vaccine; cVDPV2 = circulating vaccine-derived poliovirus type 2; IPV = inactivated polio vaccine; nOPV2 = novel oral polio vaccine type 2; PCS = Post-Certification Strategy; PQ = prequalification; WPV1 = wild poliovirus type 1.

Source: WHO.

The new strategy also introduces a more comprehensive and systematic approach to performance and risk management at all levels of the programme. To track progress and adjust to unforeseen risks, a new monitoring and evaluation (M&E) matrix has been developed with milestones, outcomes and key performance indicators (KPIs) that will help to identify programme weaknesses in a timely way and implement corrective and mitigating measures as appropriate. A separate risk register maps interrelated threats to the success of the strategy. Global technical leads will regularly review M&E indicators and outcomes, and the Polio Oversight Board (POB) will review goal-level milestones on a quarterly basis. To reinforce global health monitoring, this M&E system contributes to and is aligned with the monitoring framework of the Immunization Agenda 2030 (IA2030).³

Immunization Agenda 2030 strategic alignment

IA2030 is an ambitious global vaccine and immunization strategy endorsed by the Seventy-third World Health Assembly and supported by global health partners. Building on its predecessor, the Global Vaccine Action Plan (GVAP) for a new decade (2021–2030), IA2030 supports national efforts to improve immunization programmes and primary health care (PHC) as a means to reduce and eliminate vaccine-preventable diseases.

In recognition of the critical importance of strong immunization programmes to reach and sustain polio eradication, the GPEI will make contributions to IA2030 strategic priorities (see **Annex C**). Aligning GPEI milestones and measures for success to the IA2030 M&E framework will integrate the GPEI with global health monitoring and contribute to streamlined measurement and reporting. The GPEI will also be a part of the ownership and accountability mechanisms of IA2030, including the Partnership Council, which will ensure alignment and joint accountability with immunization partners.

As a central pillar for programme success, accountability will be upheld through distinct country- and global-level mechanisms that are collectively reinforced through the assessment of independent bodies, such as the Independent Monitoring Boards (IMB), the Strategic Advisory Group of Experts (SAGE) on Immunization and the global and regional certification commissions. Ultimately, the polio eradication programme and its partners are accountable to the world's children to ensure they are fully protected and no longer at risk from this highly infectious communicable disease (see **Accountability pillar**, next page).

² "Global Polio Eradication Initiative (GPEI). Polio Post-Certification Strategy. Geneva: World Health Organization; 2018 (<http://polioeradication.org/wp-content/uploads/2018/04/polio-post-certification-strategy-20180424-2.pdf>, accessed 10 June 2021).

³ "Implementing the Immunization Agenda 2030: Draft framework for action through coordinated planning, monitoring & evaluation, and ownership & accountability. WHO Immunization, Vaccines and Biologicals (IVB). Geneva: World Health Organization; 2020 (<https://www.who.int/publications/m/item/implementing-the-immunization-agenda-2030>, accessed 10 June 2021).

Accountability pillar

Member State bodies

-  World Health Assembly
-  International Health Regulations Emergency Committee

Independent bodies

- Independent Monitoring Boards
- Strategic Advisory Group of Experts
- Global and regional certification commissions

Global programme

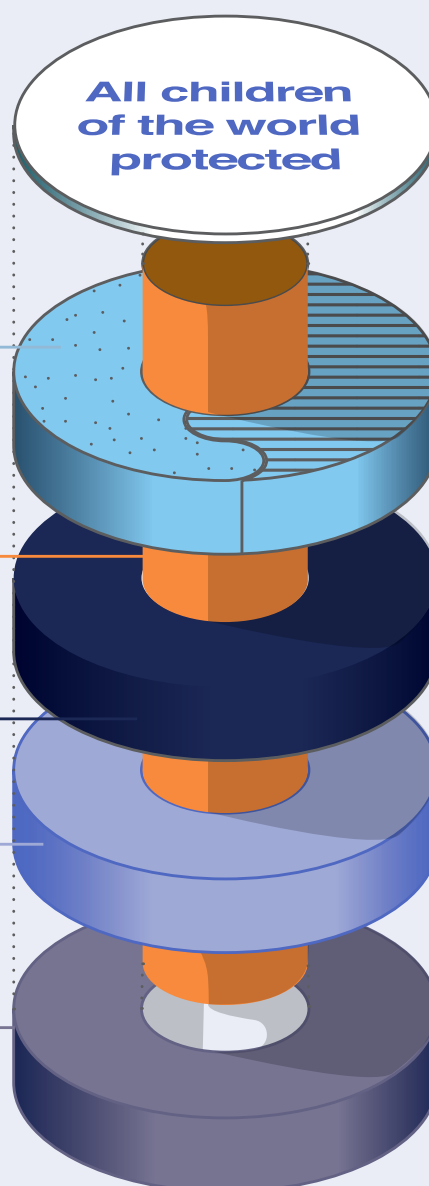
M&E framework with KPIs and risk management

Endemic country programmes

Frameworks supporting National Emergency Action Plans

Non-endemic country programmes

Frameworks supporting outbreak response



KPI = key performance indicator; M&E = monitoring and evaluation.

Source: WHO.

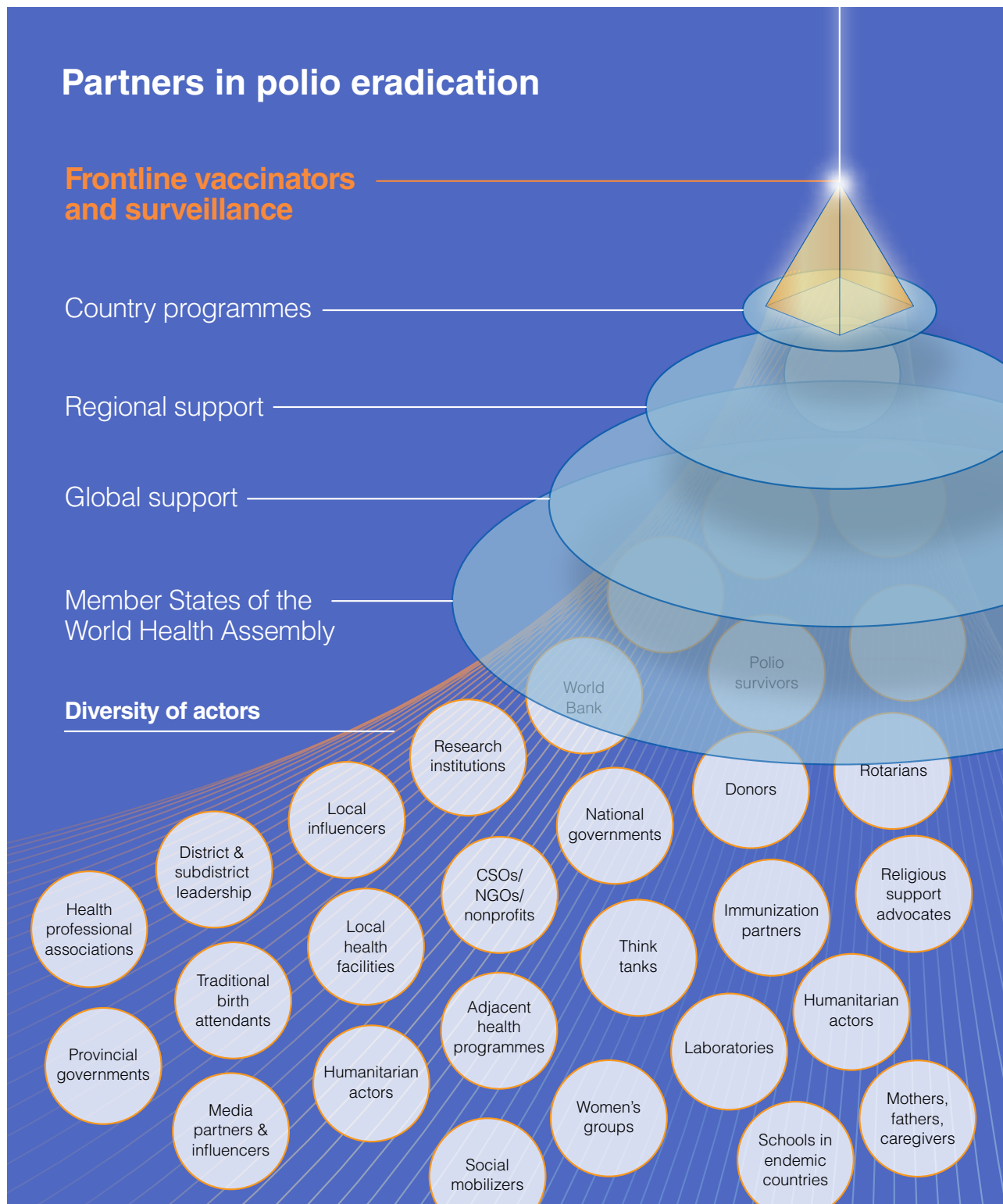
Enabling factors

To ensure the partnership is fit for purpose, the GPEI will realign its structure to strengthen accountability and transfer more decision authority to where programmes are implemented – at the national and provincial levels. Additional factors that contribute to an enabling environment include:

- optimizing GPEI management structures to promote role clarity and speed up decision-making;
- applying a gender equality lens to the implementation of programme activities;
- developing a communication strategy that utilizes social and behavioural data analyses to increase vaccine acceptance and minimize risk;
- ensuring vaccine supply mechanisms are resilient and remain uninterrupted;
- investing in the research and development (R&D) of new innovations that support eradication;
- preparing for and responding to risks through a monitoring framework; and
- resourcing the programme through appropriate costing and financing.

The way forward

The challenges of the next five years require unified commitments from GPEI agencies, governments and global, national and local stakeholders. A principal intent of the new strategy will be to align the efforts of all partners in polio eradication and focus support to the frontline delivery of polio immunization and related services (see **Partners in polio eradication**, next page). Through an emergency focus and a more integrated approach to delivering critical health interventions to polio-affected and at-risk countries and regions, the GPEI will achieve a polio-free world – and remind the global community of the enormous achievements that can be gained through collaborative engagement and collective pursuit.



CSO = civil society organization; NGO = nongovernmental organization.

Source: WHO.

COVID-19: a case study in emergency action and effective partnership

When COVID-19 emerged in 2020, countries with a strong GPEI presence were able to use expertise and infrastructure put in place by the polio eradication programme to coordinate an effective COVID-19 response. Thousands of polio workers shifted their focus to help contain the spread of the SARS-CoV-2 virus. Polio emergency operations centres (EOCs) pivoted to respond to COVID-19 through surveillance, contact tracing and specimen transport, provision of soap and hand sanitizer, distribution of training materials for medical personnel and frontline workers, and community engagement on mitigation measures.[†]

In Pakistan and Nigeria, GPEI assets were especially valuable. In Pakistan, polio labs provided COVID-19 testing and sequencing, the polio call centre became (and remains) the national COVID-19 call line, polio staff trained more than 18 600 health professionals, and polio community mobilizers engaged 7 000 religious leaders and 26 000 influencers. In Nigeria, COVID-19 response teams used EOC data systems and analytics to track and visualize PHC delivery, which helped identify gaps and target catch-up services.

To support pandemic response while delivering polio and broader immunization and surveillance activities, the GPEI and EPI accelerated their integration initiative and launched an interim Programme of Work for Integrated Actions in the context of COVID-19 (iPOW).[‡] The iPOW provides guidance to synergize polio eradication and EPI efforts in mutually beneficial areas.

In the coming years, countries may continue to depend upon GPEI support to combat COVID-19 or other health emergencies. By building upon this spirit of cooperation, joint planning and emergency response, polio eradication can be achieved amid competing health priorities and a resource-limited environment.

[†] Nearly 50 countries reported polio support for COVID-19 in the African Region (36), the Eastern Mediterranean Region (8) and the South-East Asia Region (5), totalling US\$ 26.7 million as of June 2020. See Contributions of the polio network to the COVID-19 response: turning the challenge into an opportunity for polio transition. Geneva: World Health Organization; 2020 (<https://www.who.int/publications/i/item/contributions-of-the-polio-network-to-the-covid-19-response-turning-the-challenge-into-an-opportunity-for-polio-transition>, accessed 10 June 2021)

[‡] See Global Polio Eradication Initiative (GPEI). Polio Eradication and Essential Programme on Immunization Interim Programme of Work for Integrated Actions in the context of the COVID-19 pandemic. Geneva: World Health Organization; 2020 (<https://polioeradication.org/wp-content/uploads/2020/09/Integration-POW-under-Covid-v2.0.pdf>, accessed 10 June 2021).



OVERVIEW

The GPEI stands at a crossroads, needing new approaches to overcome the last remaining hurdles and achieve polio eradication. In the final two endemic countries, Afghanistan and Pakistan, WPV1 persists alongside cVDPV2. Globally, cVDPV2 outbreaks are occurring in four of the six geographical regions of WHO.⁴ (See **Annex B** for the current epidemiological state.)

The GPEI put forth a strategy in 2019 that presented guidance to eradicate polio,⁵ but negligible progress and waning population immunity in high-risk countries and regions have contributed to a deteriorating epidemiological state, as traditional methods have proven insufficient.⁶

As the GPEI works to generate collective urgency, engagement in and accountability for polio eradication, it faces the following challenges:

- difficulty in achieving and maintaining political will due in part to inadequate approaches to securing ownership of the eradication effort by the governments of polio-impacted countries;
- under-engagement with and from affected communities as polio eradication is not positioned within their broader needs and as mistrust in the programme remains unresolved;
- undefined and largely unfunded commitments to integrate the polio programme with other health and development initiatives that have been prioritized by governments or are needed by communities;
- gaps in campaign performance left unresolved due to the absence of strong M&E frameworks and purposeful community engagement; and
- delayed detection of poliovirus transmission, compounded by a series of logistical challenges that extend response time beyond the window of maximum impact.

New strategic framework

To address these challenges and permanently interrupt poliovirus transmission, the GPEI has launched a new strategy to transform its approach – by employing all opportunities to vaccinate children, build collective ownership and accountability of the eradication effort, and ensure a level of urgency commensurate with the 2014 designation of polio as a Public Health Emergency of International Concern.⁷

The new strategic framework has been developed to identify innovative ways to overcome the most intractable barriers to eradication while optimizing the core strategies that have enabled progress against polio to date (**Fig. 3**). This more holistic strategy will bring the partnership beyond a strictly epidemiological and “vertical” approach to eradication through transformational and sustainable solutions.

⁴ In 2020, 140 WPV1 cases were reported in Afghanistan (56) and Pakistan (84), and 1418 cVDPV2 cases and isolates were reported through acute flaccid paralysis surveillance (971) and environmental surveillance (447), with the most consequential outbreaks in Afghanistan (269), Pakistan (135), Chad (98), Democratic Republic of the Congo (75) and Côte d'Ivoire (71).

⁵ Global Polio Eradication Initiative (GPEI). Polio Endgame Strategy 2019–2023: Eradication, integration, certification and containment. Geneva: World Health Organization; 2019 (<https://polioeradication.org/who-we-are/polio-endgame-strategy-2019-2023>, accessed 10 June 2021).

⁶ For more on the insufficiency of past approaches, see Independent Monitoring Board (IMB). The world is waiting: Nineteenth report; December 2020 (<https://polioeradication.org/wp-content/uploads/2020/12/19th-IMB-Report-The-World-is-Waiting-20201223.pdf>, accessed 10 June 2021).

⁷ WHO statement on the meeting of the International Health Regulations Executive Committee concerning the international spread of wild poliovirus. Geneva: World Health Organization; 5 May 2014 (<https://www.who.int/news/item/05-05-2014-who-statement-on-the-meeting-of-the-international-health-regulations-emergency-committee-concerning-the-international-spread-of-wild-poliovirus>, accessed 10 June 2021).

Fig. 3. Polio Eradication Strategy 2022–2026 strategic framework



Source: WHO.

Integration on the path to eradication – and beyond

The GPEI is committed to an integrated approach to programme implementation that enables countries to fully leverage existing polio programme assets and serve the health needs of vulnerable communities. The GPEI defines integration as joint efforts between the polio eradication programme and a range of partners with the objective of improving immunization outcomes in targeted geographies. Integration efforts are pursued through two primary means: strengthened collaboration with other immunization programmes and context-appropriate strategies for delivering vaccines alongside PHC and other services.

The **Polio Eradication Strategy 2022–2026** brings integration into focus through two transformations of approach. The first is a recognition that for polio eradication to succeed, chronically low immunization coverage and demand-based refusals of polio vaccines in key geographies and populations must be addressed, for which integration provides targeted solutions. The second is a revaluation of integration as a step towards the long-term, sustainable transition of polio functions to other health programmes and national health systems as the world nears polio eradication.

The GPEI will have multiple roles in implementing integration activities, and a decision-making framework will guide the evaluation and selection of integration opportunities (see **Annex D**). While the roles may vary, the intention is consistent and reflective of this evolved approach. Across all modalities and regions, the push for integration will allow the GPEI to better reflect the needs, voices and capabilities of the spectrum of stakeholders needed to achieve eradication.

GPEI integration efforts at a global level will entail:

- engaging in multisectoral discussions with governments and relevant health and humanitarian programmes to identify and plan integration initiatives;
- providing co-funding and operational assistance for the co-delivery of the bivalent oral polio vaccine (bOPV) in other campaigns;
- providing co-funding for integrated service delivery in the high-risk districts of Afghanistan and priority communities in Pakistan;
- providing resource mobilization and advocacy to direct existing funds for expanding PHC, including essential immunization in targeted subnational areas at high risk for polio;
- working with national governments to determine how polio-essential functions will be managed and eventually transitioned to EPI;
- providing technical assistance and strategic oversight for areas related to essential immunization delivery and vaccine-preventable disease (VPD) surveillance; and
- participating in governance structures of the IA2030 and World Bank country and regional review mechanisms.



Readiness for what lies ahead

As the COVID-19 pandemic demonstrated, sudden and unexpected events can delay progress towards eradication. Drawing upon these hard-earned lessons, the partnership enters this strategic period equipped with a new risk management approach to proactively monitor risks and their potential cascading effects upon the programme (see **Annex E**).

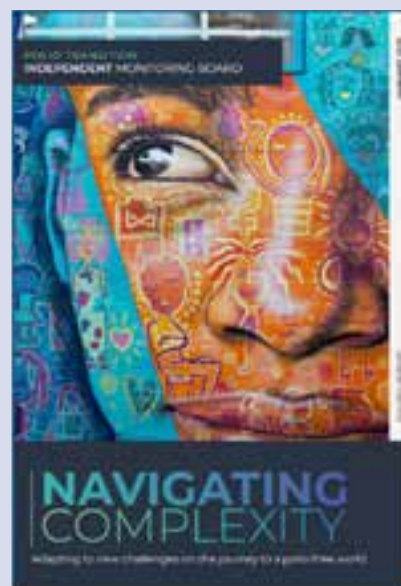
Braced with new tools and frameworks, the GPEI launches this strategy with a renewed sense of how precarious gains in public health and global health security can be, how urgently they must be protected, and how evident it is that collaboration and partnership remain the programme’s strongest asset. By emphasizing urgency in all activities, by becoming a willing and responsive partner to governments, communities and other health initiatives, and by rebalancing capacity and decision-making towards regional and country teams, the polio programme and its partners will collectively generate greater accountability and increased ownership of eradication efforts – and achieve a polio-free world.

Navigating transition

Over more than three decades, the GPEI has set up infrastructure to pursue polio eradication in countries around the world. This has supported not only polio eradication-related activities but also functions that go well beyond this core purpose, including VPD surveillance and laboratory functions; essential immunization activities; new vaccine introductions in many countries; emergency preparedness and response; and health system strengthening.

The GPEI has also cross-subsidized operations support. Services such as logistics, data, finance, human resources and administration are essential to running polio eradication work – and they, too, have been shared much more widely. Countries in a substantial part of the world, particularly in the African, Eastern Mediterranean and South-East Asia Regions, have become heavily reliant on GPEI infrastructure to sustain broader public health functions. Against the backdrop of COVID-19 pandemic response and an ever-tightening fiscal environment, the GPEI will endeavour to eradicate WPV1, interrupt cVDPV transmission and maintain polio-free status while supporting an expedited, risk-based transition of United Nations Children’s Fund (UNICEF) and WHO staffing and infrastructure to Member States and essential immunization or health emergency programmes.

See the Transition Independent Monitoring Board’s report on *Navigating Complexity** for more on the transition of polio assets and functions.



*Polio Transition Independent Monitoring Board (TIMB). Fourth report, Navigating complexity. January 2021 (<https://polioeradication.org/wp-content/uploads/2021/02/4th-TIMB-Report-Navigating-Complexity-20210131.pdf>, accessed 11 June 2021).





Goal One

Permanently interrupt all poliovirus transmission in endemic countries

Interrupting WPV1 and cVDPV2 transmission in the final two endemic countries is the primary goal on the path to global polio eradication. To interrupt all poliovirus transmission in Afghanistan and Pakistan, the GPEI plans to first limit circulation to core reservoirs and shared corridors of transmission and then interrupt all poliovirus within the reservoirs by 2023, with the global eradication of all wild poliovirus certified by 2026. The programme has made progress towards cVDPV2 interruption and will continue to respond to breakthrough events to stop cVDPV2 transmission.

EPIDEMIOLOGICAL CONTEXT

Poliovirus has never been stopped simultaneously across Afghanistan and Pakistan. Due to deep social, cultural and economic ties and large-scale cross-border population movement, Afghanistan and Pakistan represent a single epidemiological block and both countries must interrupt poliovirus transmission for either country to achieve and sustain eradication. After an emergence of cVDPV2 in 2019, waning type 2 mucosal immunity and gaps in immunization activities enabled cVDPV2 spread, and Afghanistan and Pakistan are now experiencing the co-circulation of WPV1 and cVDPV2. (See **Annex B** for the current epidemiological state.)

CURRENT CHALLENGES

In Afghanistan, a ban on house-to-house immunization has resulted in more than 1 million children persistently missed in southern areas by polio vaccination campaigns since May 2018. As a result, in 2019 and 2020, respectively, 90% and 75% of Afghanistan's WPV1 cases⁸ originated in areas not currently accessible for vaccination. In accessible areas, progress is hampered by several factors, most notably poor-quality campaigns due to insufficient planning and staffing issues within national and provincial EOCs, as well as a lack of rigorous accountability mechanisms.

In Pakistan, progress has been forestalled by a combination of factors: complacency with declining cases from 2015 to mid-2018,⁹ including a few months without a single case; transitions in national leadership and a subsequent politicization of polio; an increase in vaccine hesitancy; and a misalignment between newly emerging challenges in priority areas and vaccination approaches that were better suited for a past era. Additionally, misinformation about vaccines and vaccination programmes circulates widely through social media platforms, contributing to rising refusal rates. Campaign reach has been impacted by ineffective engagement with marginalized populations at high risk for polio, specifically Pashto-speaking communities that represent 15% of the country's population yet bear a disproportionate burden (81%) of Pakistan's WPV cases over the last 10 years.⁹ This difficult context, in tandem with operational gaps in vaccine delivery, has resulted in increased WPV1 cases and has contributed to cVDPV2 spread.

⁸ See Technical Advisory Group (TAG) on Polio Eradication in Afghanistan, March 2021 (<https://polioeradication.org/wp-content/uploads/2021/04/Afghanistan-TAG-Report-20210317-20.pdf>, accessed 23 August 2021).

⁹ See Meeting of the Technical Advisory Group (TAG) on Polio Eradication in Pakistan, February 2021 (<https://polioeradication.org/wp-content/uploads/2021/04/Pakistan-TAG-Report-20210209-11.pdf>, accessed 23 August 2021).

For both countries, the COVID-19 pandemic has added to these challenges. In early 2020, COVID-19's first wave led to restrictions on movement and the temporary suspension of polio activities between March and July. During this operational pause, surveillance quality deteriorated and immunization campaigns were postponed. In 2021 and beyond, the introduction of COVID-19 vaccines will present an opportunity to synergize immunization messaging, even as the vaccination misinformation epidemic (now termed the “infodemic”) will need to be addressed to achieve high vaccination coverage.

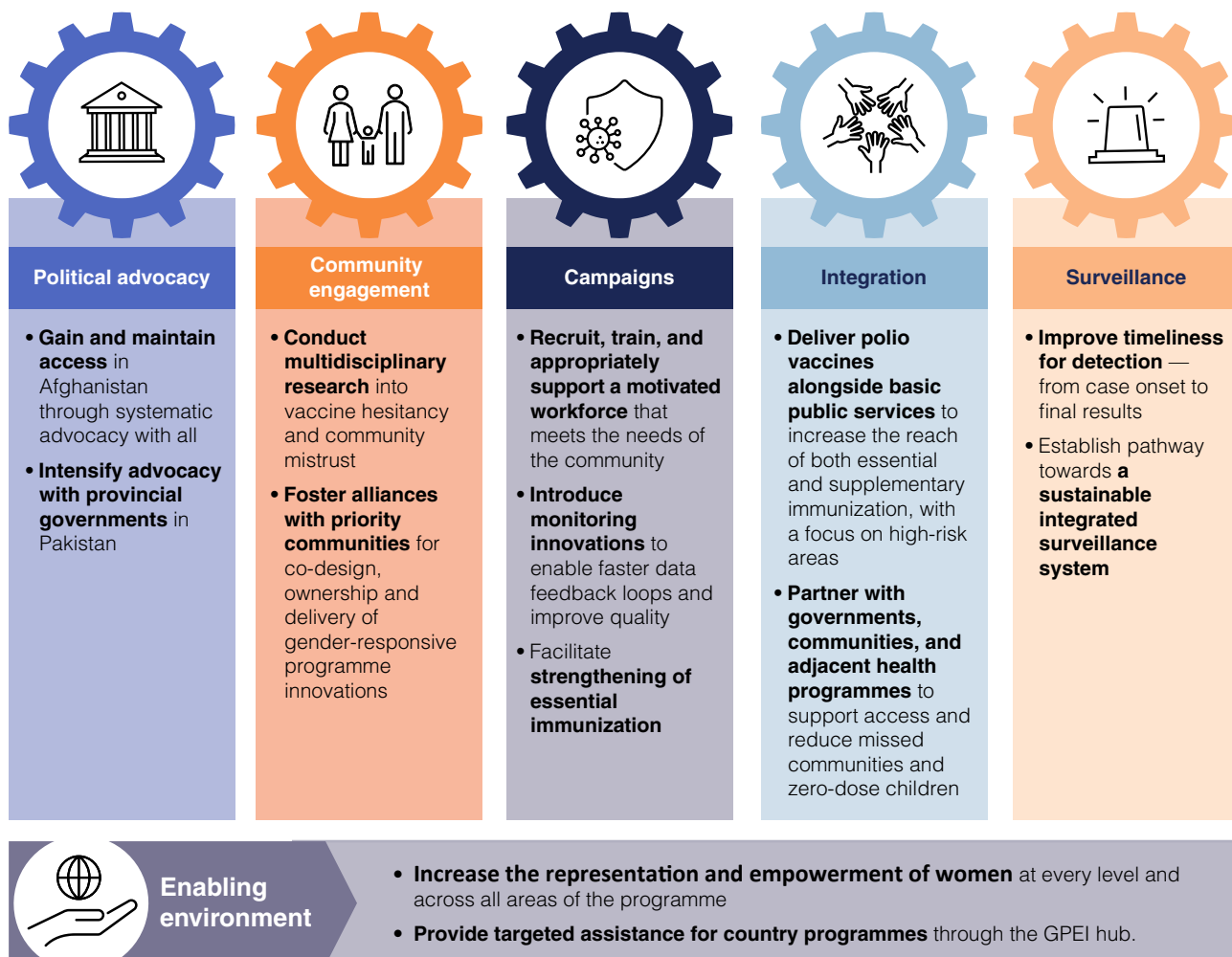
PATH TO PERMANENTLY INTERRUPT ALL POLIOVIRUS TRANSMISSION IN ENDEMIC COUNTRIES

Interrupting all poliovirus transmission in Afghanistan and Pakistan will require national governments, country programmes, GPEI implementing agencies and core partners to undertake an emergency posture. UNICEF and WHO will continue to operate under their respective emergency declaration authority to expedite resource mobilization and allocations, shorten staffing and deployment processes, and provide greater delegation of authority closer to the field.

The path to eradication (see **Fig. 4**) will take:

- increased political will at all levels of government and with all local actors through a commitment to the apolitical value of polio eradication;
- a deep and enduring partnership with marginalized communities, especially those living in the highest-risk districts for polio;
- a well-functioning programme with a motivated and appropriately staffed frontline workforce who consistently delivers vaccines to the doorstep of every household or at every opportunity in areas where household access is restricted;
- an integrated service delivery approach that prioritizes essential immunization and the provision of other health services; and
- a continued investment in and improvement of surveillance quality and timeliness of detection.

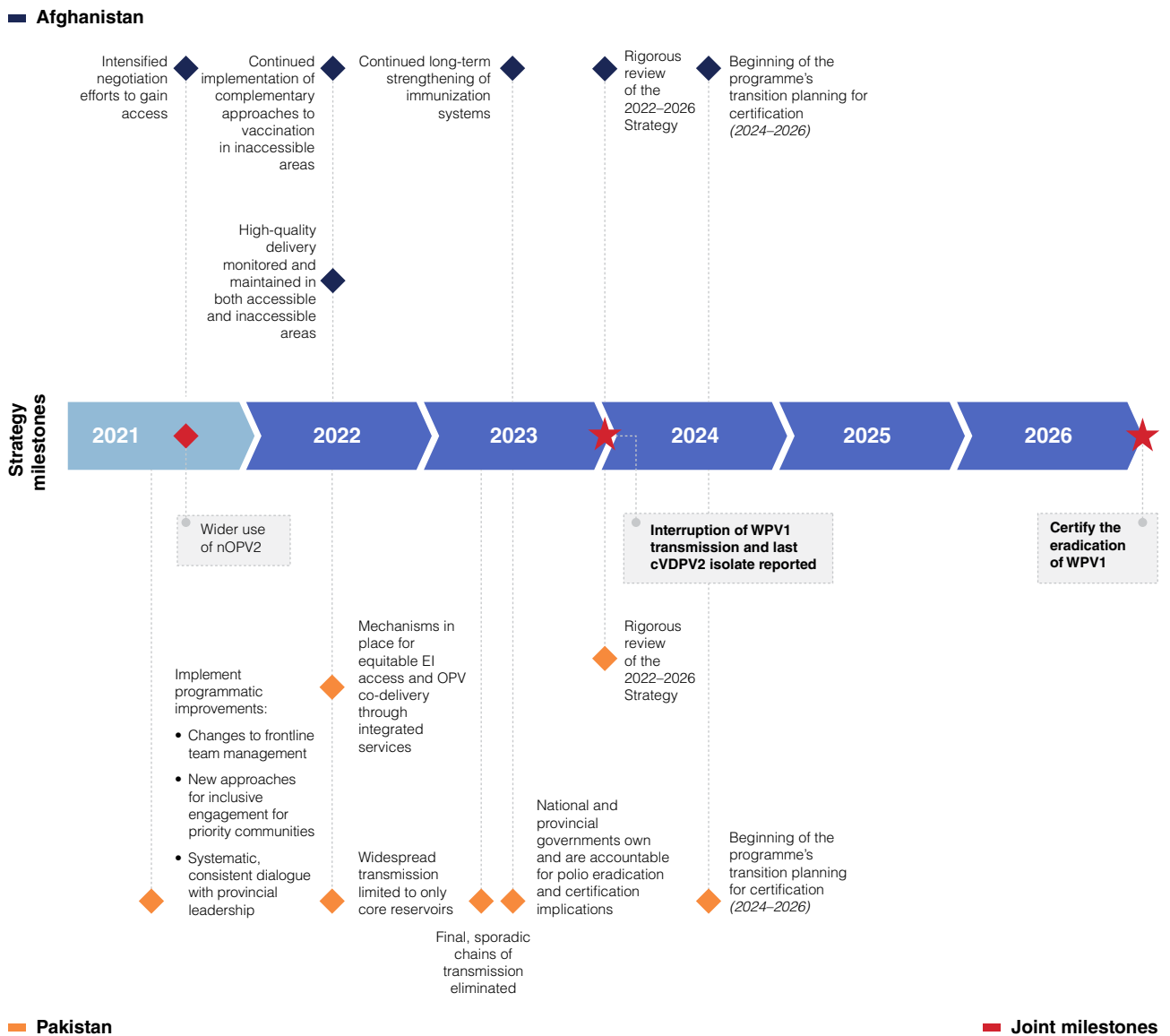
Fig. 4. Goal One strategic objectives and key activities



Source: WHO.

To ensure both endemic countries remain on track for milestones towards successful interruption (see **Fig. 5**), the GPEI will closely monitor progress through KPIs that prioritize advocacy, community engagement and the integration of polio vaccine delivery with other desired services, alongside focused programmatic and operational improvements (see **Monitoring and evaluation framework** and **Annex F**).

Fig. 5. Milestones for interrupting poliovirus transmission in Afghanistan and Pakistan, 2021–2026



cVDPV2 = circulating vaccine-derived poliovirus type 2; EI = essential immunization; nOPV2 = novel oral polio vaccine type 2; OPV = oral polio vaccine; WPV1 = wild poliovirus type 1.

Source: WHO.

1. Create urgency and accountability through advocacy to generate greater political will

A renewed focus on and evolved approach to stakeholder engagement and political advocacy will be central to achieving eradication in Afghanistan and Pakistan.

In Afghanistan, widespread conflict and insecurity disrupt campaign operations due to restricted access in key geographies. These barriers to reaching children who have been inaccessible to the programme will only be resolved by engaging all local actors, directly or through intermediaries, to negotiate access and achieve broad consensus that polio immunization is apolitical and that all children, regardless of where they live, deserve protection from polio. Given uncertainties around the ongoing subnational political situation, the polio programme will proactively utilize all means and opportunities to reach children in areas that are inaccessible to house-to-house vaccinators.

In Pakistan, programme success depends on increasing government ownership of polio service delivery. The government has the capacity to ensure nationwide vaccination coverage, but polio is no longer a public health priority, particularly at the district and provincial levels where health decision-making authority resides. Rebuilding a commitment to polio eradication requires systematic dialogue with the national and provincial leadership and other influential stakeholders. The programme will use every available opportunity to ensure polio eradication remains a top public health priority for the government, including the National Task Force chaired by the Prime Minister, the Provincial Task Forces chaired by provincial chief ministers, and through direct engagement by world leaders and the POB in all appropriate forums. The GPEI will also continue to provide full support to the government and country programme, including through National Emergency Action Plans (NEAPs).¹⁰

Government ownership in Nigeria

On 18 June 2020, after responding to challenges related to insecurity, inaccessibility, vaccine hesitancy and weakened health systems, Nigeria was declared free of wild poliovirus. A key element in the country's success was government ownership and engagement.* Nigerian heads of state played a visible and active role, even launching national campaigns by vaccinating their own grandchildren on television. Domestic financial contributions signalled the government's firm commitment. Between 2011 and 2019, Nigeria contributed US\$ 190 million through loan funds and taxpayer support to the country's financial resource requirements under the GPEI.† In a large, federated country, commitment was needed at the state level. All 36 executive governors signed an agreement to provide leadership,‡ meeting regularly to review progress against a strong monitoring and accountability framework. This state commitment was further amplified by community leaders who championed polio eradication.

* Vaz RG, Mkanda P, Nsubuga P, Ado M, Etsano A. Best Polio Eradication Initiative (PEI) practices in Nigeria with support from the WHO. *J. Infect. Dis.* 2016;213(suppl_3): S65–S66 (https://academic.oup.com/jid/issue/213/suppl_3, accessed 11 June 2021).

† See Global Polio Eradication Initiative (GPEI). Historical Contributions, 1985–2019 (<https://polioeradication.org/financing/donors/historical-contributions>, accessed 11 June 2021).

‡ See the Global Polio Eradication Initiative (GPEI). Abuja Commitments to Polio Eradication in Nigeria (<https://polioeradication.org/tools-and-library/policy-reports/declarations-and-resolutions>, accessed 11 June 2021).

Key areas of evolution

Restoring the emergency posture needed to interrupt transmission will require reinstating polio as a public health priority to generate a renewed focus of national and provincial governments and stakeholders at all levels within both countries. To reprioritize polio eradication and create urgency and accountability to generate greater political will, the GPEI will:

- take a proactive and strategic approach to open dialogue with all stakeholders – from the national and provincial levels to local community settings – to build personal relationships, increase trust and develop a better understanding of the benefits of an effective polio programme;
- explore every option to address the ban on house-to-house vaccinations, including negotiating intermediate (though less effective) vaccination options, such as mosque-to-mosque, site-to-site and expanded permanent transit point vaccinations;
- establish a specific work stream on political advocacy with staffing capacity to support countries and coordinate regionally and globally, where needed. The GPEI hub will help countries carry out stakeholder mapping by tracking outreach and consolidating information. The hub will also liaise with GPEI political advocacy and global communication groups and facilitate multidisciplinary expertise (social, political, economic) from outside of the GPEI to develop new approaches that will strengthen ties with key stakeholders and communicate better with specific audiences; and

¹⁰ National Emergency Actions Plans are available on the GPEI website via dedicated country pages for Afghanistan and Pakistan (<https://polioeradication.org/where-we-work/afghanistan> and <https://polioeradication.org/where-we-work/pakistan>, both accessed 11 June 2021).

- utilize regional and national platforms to rally broader support for polio eradication. At the regional level, the new Eastern Mediterranean Ministerial Regional Subcommittee on Polio Eradication and Outbreaks will play a key role in building and maintaining regional commitment to the polio programme. Regional, national and subnational communications efforts will also build and maintain an enabling environment for the eradication effort as well as support ongoing dialogue and engagement with communities to minimize communication-related risks and generate vaccine demand.

Taken together, these changes will provide the GPEI with greater opportunities to convey the value of polio assets and infrastructure to other health priorities and explore the best mechanisms to advocate for domestic financing and strengthened government accountability.

What success looks like

Outcome 1: Heightened national ownership in the form of statements and political commitments displayed through the frequency and regularity of National Task Force meetings chaired by the head of state or government and the frequency and regularity of Provincial Task Force meetings chaired by province-level government leadership; and a decline in the number of children remaining inaccessible in Afghanistan.

Outcome 2: Heightened provincial and local government ownership demonstrated by qualified staff in place to act swiftly and in the right localities, and vacancies in key positions filled within three months. The availability of sanctioned positions for required personnel at the provincial level and in all high-risk areas at the district and subdistrict level and the proportion of these positions filled will be used to assess progress.

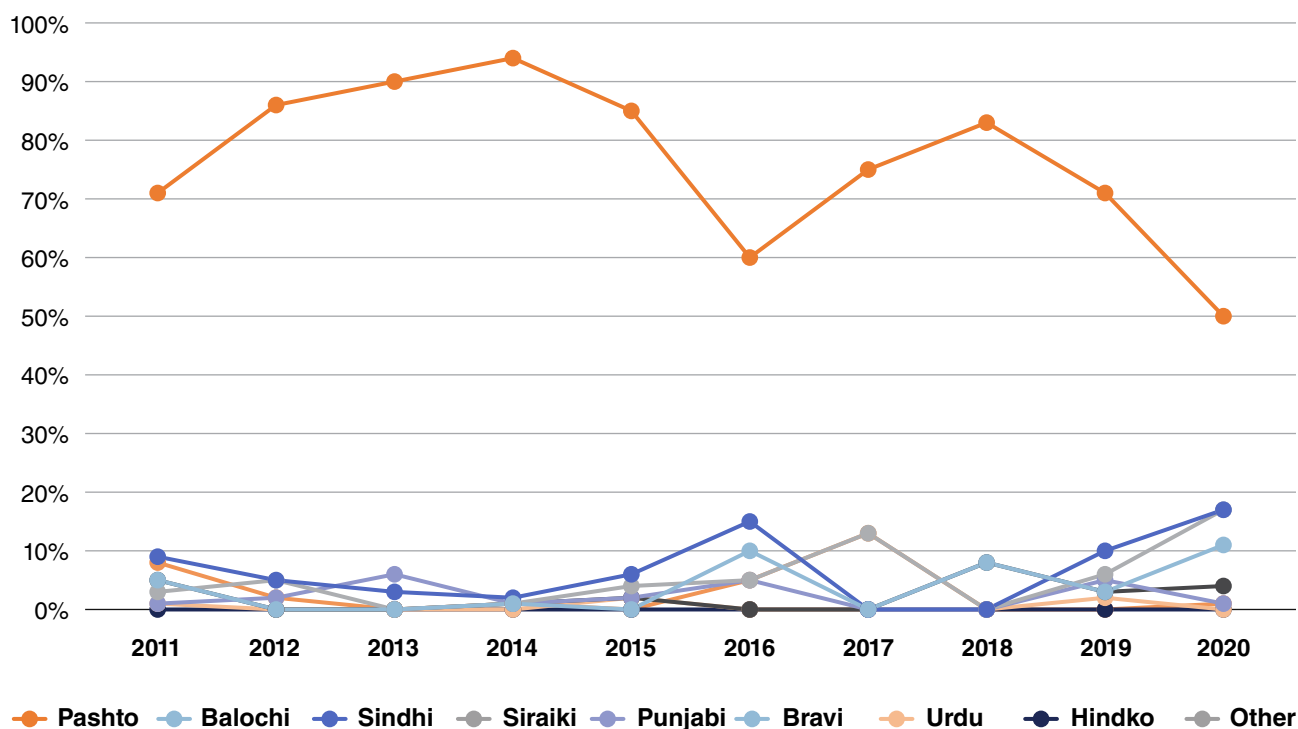


2. Generate vaccine acceptance through context-adapted community engagement

The GPEI will overcome hesitancy and generate vaccine acceptance by developing a better understanding of cultural and social barriers and other key drivers that influence the decision of caregivers and by building meaningful partnerships with high-risk communities disproportionately affected by polio. Drawing upon expertise in behavioural science, human-centred design, intersectional gender analysis and diverse levers of social change, the programme will develop and deploy new approaches to reinforce vaccination as a key social norm and family care practice. By partnering with communities and local governance structures and using context-adapted vaccination strategies, the programme will facilitate better health opportunities for children, while also reaching the goal of global polio eradication.

Pashto-speaking communities in Afghanistan and Pakistan have accounted for a disproportionately higher percentage of WPV1 cases than other ethno-linguistic groups (see **Fig. 6** for cases in Pakistan). While these communities represent a higher polio burden, they are also numerous and diverse – with their relative polio risk distributed unevenly across different areas, localities and contexts. As many Pashto communities live and travel across the common Afghanistan and Pakistan border and many have been displaced due to political turbulence, actualizing a robust partnership with these communities will be critical to achieving polio eradication in the two countries.

Fig. 6. Trends in the proportion of WPV cases by linguistic group in Pakistan, 2011–2020



Source: Pakistan Polio Eradication Initiative, National Emergency Action Plan 2021–2022.

Key areas of evolution

To generate vaccine acceptance, the programme must first identify at a granular level the dynamics driving hesitancy and resolve them through sustained communication, engagement and alliance-building. The country programmes will:

- expand the use of social data, behavioural science, behavioural interventions and social media analytics to inform communication strategies “on” and “offline” and develop new digitally integrated and context-adapted approaches, thereby contributing to a more enabling environment;
- invest in strengthening the communication competencies of frontline workers and supervisors, with an emphasis on enhanced interpersonal skills, coaching, motivation and supportive supervision that are focused on establishing credibility and rapport at the “doorstep”. Frontline worker training will be responsive to local needs and informed by social data to address specific community issues and challenges;
- work with influencers in Pashto-speaking communities, including traditional birth attendants and women’s groups, to create a multidisciplinary, Pashto-centred approach that aims to understand the health-seeking behaviours of pregnant women in underserved communities and offers polio vaccination as supportive of their broader childcare practices. Methods that will be pursued include participatory knowledge-building and programme design that aggregate gender-sensitive ethnographic, demographic and health system information;
- institute a paradigm shift towards priority community engagement through the creation of Community Immunization Committees, where community members can interface directly with the programme, contribute to campaign planning and relay broader health needs that can be explored for integrated service packages. Targeted interventions beyond immunization and health will be pursued for areas with persistently high levels of mistrust. To ensure ownership and co-implementation of any initiatives, analyses will be carried out in close coordination with frontline teams and Community Immunization Committees. Where possible, Community Immunization Committees will be developed in coordination with existing mechanisms, such as health shuras and rural development committees; and
- capitalize on private-sector technical assets by working with entities that are committed to social impact and have demonstrated expertise with Pashto-speaking communities. These entities, which include academic and social institutions, think tanks, the corporate sector, family-owned businesses, start-ups and local non-profit organizations, can provide fresh perspectives and alternative diagnoses of barriers to vaccine acceptance.

Furthermore, in coordination with the government and development partners, the GPEI will work to become an effective ally of these communities by advocating for increased commitments on basic health service delivery (see **section 4 below**).

What success looks like

Outcome 1: Increased campaign awareness ahead of all immunization campaigns, ensuring that at least 90% of the households are aware of campaigns before visits by vaccination teams.

Outcome 2: Improved vaccine acceptance in priority subnational areas and increased community participation in immunization campaigns reflected in an increase in the proportion of local female frontline workers serving as vaccinators and area supervisors, in compliance with GPEI measures for protection from sexual exploitation and abuse (PSEA) and safeguarding, helping with an overall decline in vaccine hesitancy in high-risk districts.

Outcome 3: Increased use of innovative approaches to improve community engagement (including social and behaviour change research, analytics and campaign design) demonstrated through locally designed and implemented solutions in polio and essential immunization campaigns.

Transformative potential: the role of gender equality in eradication

In Afghanistan and Pakistan, recruiting, training and retaining women as vaccinators, community mobilizers and surveillance officers is a priority for the GPEI and is considered essential to campaign success, as access to children is frequently contingent on the presence of female health workers. For the life of this strategy, the Technical Advisory Group (TAG) for Afghanistan and Pakistan will regularly provide recommendations to ensure country programmes are more gender-responsive in their planning and implementation.*

*For more information, see the meeting reports for Pakistan and Afghanistan (<https://polioeradication.org/wp-content/uploads/2021/04/Pakistan-TAG-Report-20210209-11.pdf> and <https://polioeradication.org/wp-content/uploads/2021/04/Afghanistan-TAG-Report-20210317-20.pdf>, both accessed 14 June 2021) from February and March 2021, respectively. See also the NEAPs that can be accessed via the GPEI’s dedicated country pages for Afghanistan and Pakistan (<https://polioeradication.org/where-we-work/afghanistan> and <https://polioeradication.org/where-we-work/pakistan>, both accessed 14 June 2021).

3. Improve frontline success through changes to campaign operations

Polio eradication ultimately depends on the delivery of high-quality vaccination through the administration of polio vaccines in essential immunization and in supplementary immunization activities (SIAs) by capable, motivated frontline workers who reach every boy and girl of the appropriate age with appropriate vaccines. In areas where essential immunization coverage is inadequate, SIAs are the means by which the GPEI has increased polio vaccine coverage and made progress towards polio eradication. However, operational gaps and under-motivated staff within endemic country programmes have contributed to suboptimal campaign quality. These gaps are not limited to the high-risk and core reservoir areas, but are more systemic, impacting many campaigns. Achieving eradication requires addressing these gaps that have remained unresolved in areas outside the core reservoirs.

Key areas of evolution

To improve campaign quality, the GPEI will improve frontline programme delivery and address operational challenges. Country programmes will:

- ensure the right vaccinators and supervisors are in place for each community by recruiting, training and retaining personnel who come from the local community, speak the local language dialect and are preferably female, including older women who often convey experience that can positively influence caregivers;
- create a supportive environment for frontline workers by ensuring they have the necessary supplies, facilities and security support to perform their jobs and are well-trained, including in “soft” management skills such as team-building, stewardship and interpersonal communication that contribute to their professional development, thereby boosting motivation;
- revamp training and guidelines on proper microplanning and support government efforts to adopt impactful technology, including digital mapping; and
- ensure regular and effective review processes that identify and solve problems at the appropriate level.

To drive these changes, the programme will strengthen campaign monitoring mechanisms. The GPEI will aide and accelerate government efforts to adopt digital tools that simplify data collection, provide greater precision and enable faster, data-driven feedback to identify gaps in microplanning and improve campaign quality. Through these efforts, timely data will be provided to decision-makers at all programme levels.

Duty of care: protecting communities and polio workers

“Safeguarding” means taking all reasonable steps to prevent death and harm, including sexual exploitation, abuse and harassment; to protect people, especially vulnerable adults and children, from that harm; and to respond appropriately when harm occurs. In polio eradication, this applies to the safety and welfare of polio-affected communities and polio workers, with special attention to the needs of women and the communities where they work.

In line with the POB’s 2018 statement, the GPEI will focus on three work streams to prevent and address sexual exploitation and abuse: (1) **policy** through rapid analysis of existing policies and standards at the country level; (2) **operations** to ensure support for survivors, enhance accountability and transparency, strengthen reporting and tackle impunity; and (3) **cultural change and capacity-building** to promote cultural change and strengthen organizational capacity (including building the capability of implementing partners) to meet the minimum standards to prevent and respond to exploitation and abuse.

What success looks like

Outcome 1: Improved campaign quality, particularly to reduce persistently missed children (evidenced through age- and sex-disaggregated data) in SIAs, demonstrated through an increase in the proportion of microplans developed via integrated workshops (inclusive of EPI; maternal, newborn, child and adolescent health [MNCAH]; communications and geographic information systems [GIS]) leveraged in a gender-responsive way; and campaigns achieving at least 90% coverage (based on lot quality assurance sampling [LQAS] and/or intra-campaign monitoring [ICM]).

4. Expedite progress through expanded integration efforts and unified partnerships

Afghanistan and Pakistan polio assets have been used to conduct multi-antigen immunization campaigns and deliver other critical health interventions, including the distribution of vitamin A and deworming tablets and the dissemination of maternal and child health messaging. Polio eradication staff deployed in the field have provided campaign support for broader immunization goals, surveillance for vaccine-preventable and epidemic-prone diseases, and response to other outbreaks and health emergencies, most recently through the COVID-19 pandemic. While polio support has helped local health and broader immunization goals, assistance often has been need-based and incident-specific.

The GPEI will develop a broader, systematic, multisectoral approach to integrated service delivery with a special focus on underserved communities in high-risk areas. Specifically, in the high-risk districts of Afghanistan and priority communities in Pakistan, the GPEI will co-fund integrated service delivery and utilize investments across the health sector to address persistently low essential immunization coverage. Moreover, as part of the implementation of the global vision for immunization outlined in IA2030 and Gavi 5.0,¹¹ the GPEI will support efforts in Afghanistan and Pakistan to strengthen immunization programmes with a PHC focus to reach zero-dose children with all vaccines, including polio vaccines. The GPEI is also committed to supporting COVID-19 surveillance and vaccine rollout in 2021 and beyond.¹²

Key areas of evolution

In Afghanistan and Pakistan, the areas at highest risk for polio have the highest concentration of zero-dose children for polio and other VPD. In inaccessible areas of Afghanistan, where house-to-house campaigns are banned, and in accessible areas of Pakistan that have high refusal rates, integrated service delivery will become a lynchpin of the strategy. By integrating polio vaccines within a broader package of health and related services that reflect community needs, the programme will restore trust, gain access and increase vaccine acceptance. Additionally, close collaboration with nongovernmental organizations (NGOs), such as the International Committee of the Red Cross, the International Federation of the Red Cross and Red Crescent Societies and other reputable private entities will help in understanding and responding to underlying drivers of vaccine refusal, thereby helping to reduce zero-dose children.

To support immunization for polio and other VPD efforts, the programme will:

- provide operational assistance and funding for the co-delivery of bOPV in essential immunization activities;
- increase access to and utilization of essential immunization services by supporting birth-dose oral polio vaccine (OPV) in health facilities, integrating operational microplans, enhancing supportive supervision and monitoring outreach activities, harmonizing social mobilization and health promotion efforts, and using new technology (such as mobile money and GIS) to support operations, where necessary;
- track and follow up on polio zero-dose children and analyse birth-dose OPV coverage;
- support the M&E framework for all immunization activities and unifying data analytic approaches and review processes, including the use of technology to provide granular vaccination coverage and zero-dose data; and
- more broadly, ensure strategic objectives of the polio eradication programme are reflected in wider investments in EPI and health system strengthening (HSS).

To identify interventions that meet the broader needs of communities and are co-developed through their active engagement and partnership, the programme will advocate with national and local governments for the provision of basic services and will coordinate with partners to align operational support and funding for these targeted activities. A decision-making framework will guide countries through evaluating integration opportunities and activities (see **Annex D**).¹³ To support country programmes, the GPEI will also conduct a comprehensive and transparent stakeholder mapping of potential integration partners among NGOs and adjacent health and related programmes and develop an action-oriented engagement policy that will provide regular evidence-based updates to the highest levels of government.

¹¹ Immunization Agenda 2030: A global strategy to leave no one behind (IA2030). WHO Immunization, Vaccines and Biologicals (IVB). Geneva: World Health Organization; 2020 (<https://www.who.int/teams/immunization-vaccines-and-biologicals/strategies/ia2030>, accessed 10 June 2021). Gavi, the Vaccine Alliance. Phase V Strategy (2021–2025). Geneva: Gavi, the Vaccine Alliance; 2019 (<https://www.gavi.org/our-alliance/strategy/phase-5-2021-2025>, accessed 14 June 2021).

¹² For more information, see Contributions of the polio network to the COVID-19 response: turning the challenge into an opportunity for polio transition. Geneva: World Health Organization; 2020 (<https://www.who.int/publications/i/item/contributions-of-the-polio-network-to-the-covid-19-response-turning-the-challenge-into-an-opportunity-for-polio-transition>, accessed 14 June 2021).

¹³ Key subnational areas at high risk for polio have been defined by the national programmes of the endemic countries and include the southern region in Afghanistan and the core reservoir districts in Pakistan. These are subject to change, based on the epidemiology.

What success looks like

Outcome 1: Integrated services tailored to a community context and delivered with a gender lens in targeted geographies (as per NEAPs) as demonstrated through the implementation of integrated service package in high-risk areas.

Outcome 2: Alignment between polio and immunization objectives resulting in HSS and EPI investments reflecting polio programme strategic objectives, and polio contributing to IA2030 and country immunization goals to reduce zero-dose children, demonstrated through the proportion of multi-antigen campaigns.

Outcome 3: Continued support to broader global and national public health initiatives as a pathway towards a successful programme transition, demonstrated through an increase in the amount of PHC investments in high-risk districts in endemic countries and contributions of polio-supported personnel to the COVID-19 response.



5. Improve detection and response through sensitive surveillance

In contrast to immunization activities that are restricted in parts of Afghanistan, the poliovirus surveillance system has access in all districts and is well-functioning in Afghanistan and Pakistan. The two countries have a strong acute flaccid paralysis (AFP) surveillance system and an extensive network of environmental surveillance (ES) sites that are supplemented by routine contact sampling and occasional healthy children sampling.

The sensitivity of the surveillance system at the subnational level and in hard-to-reach areas, however, shows evidence of gaps in detection. In the last two years, the number and proportion of orphan viruses (chains of transmission not detected in a timely manner) have increased. These are clustered in areas with regular nomadic population movements and seasonal migrations in southern Afghanistan and central Pakistan. The spread of COVID-19, the resulting lockdowns and changes to health-seeking behaviour have also resulted in a transient decline in the number of AFP cases reported.

The GPEI will address these gaps and maximally utilize technological innovations and new methods in detection to further enhance the quality, sensitivity and timeliness of surveillance at the subnational level.¹⁴

Key areas of evolution

To improve surveillance quality, the GPEI will close subnational surveillance gaps in all underperforming districts while working to deliver incremental improvements throughout the system. In the two endemic countries, the programme will:

- enhance AFP surveillance in underperforming districts by focusing on improving active surveillance and enhancing the use of community-based surveillance in hard-to-reach areas;
- support ES expansion in Afghanistan while optimizing the size of the ES network in Pakistan;
- shorten the time frame from the onset of symptoms of an AFP case to the availability of final results by:
 - seeking gains at every stage of the process between case onset and sample arrival at the Regional Reference Laboratory; and
 - substantially decreasing the time between sample arrival in the laboratory and final results by implementing direct detection and other new technologies for early virus detection and characterization;
- expand web-based surveillance systems currently in use to improve data quality and accuracy by shifting all remaining field-level, paper-based data collection tools to an electronic format;
- establish a national surveillance capacity-building strategy that delivers regular national and subnational trainings to mitigate personnel attrition;
- ramp up the integration of VPD surveillance into the polio surveillance workplan,¹⁵ starting with COVID-19 and measles, in coordination with country-level disease surveillance and response offices under the leadership of the national and provincial EOCs; and
- ensure a monthly review of surveillance at the subnational level and a quarterly review of surveillance performance at the country level; adopt self-reinforcing national and subnational supervisory, monitoring and oversight activities that provide opportunities for continuous system evaluation, staff training and mentoring and (importantly) data for rapid response.

What success looks like

Outcome 1: Consistent global implementation of surveillance standards, with a focus on polio-priority districts measured through the proportion of districts meeting AFP surveillance standards and the proportion of ES sites meeting high-sensitivity thresholds.

Outcome 2: Increased speed of detection and precision of the surveillance system demonstrated through (at least) 80% of cases with adequate stool sample collection disaggregated by sex, and the proportion of WPVs and vaccine-derived polioviruses (VDPVs) reporting final lab results within 35 days of onset for AFP cases or ES sample collection.

¹⁴ Global Polio Eradication Initiative (GPEI). Global Polio Surveillance Action Plan, 2018–2020. Geneva: World Health Organization; 2019 (<https://polioeradication.org/wp-content/uploads/2016/07/GPEI-global-polio-surveillance-action-plan-2018-2020-EN-1.pdf>, accessed 14 June 2021). Revision in development.

¹⁵ See the surveillance recommendations in Global Polio Eradication Initiative (GPEI). Meeting of the Technical Advisory Group (TAG) on Polio Eradication in Pakistan. Geneva: World Health Organization; June 2020; p. 15 (<https://polioeradication.org/wp-content/uploads/2020/07/Pakistan-TAG-Report-June-2020-FV.pdf>, accessed 14 June 2021).



Goal Two

Stop cVDPV transmission and prevent outbreaks in non-endemic countries

By 2026, the GPEI plans to achieve cVDPV2 interruption and validation of the absence of cVDPV2 in all current outbreak countries by shifting to an emergency management structure with clearly defined roles and responsibilities, developing and implementing a comprehensive accountability framework, increasing government ownership through political advocacy, and strengthening regional and country capacities for sensitive surveillance and rapid, high-quality response. Innovative tools and methods, as well as new partnerships, will be pursued to strengthen outbreak response operations.

EPIDEMIOLOGICAL CONTEXT

In April 2016, following the 2015 declaration of type 2 WPV eradication, a global switch from the trivalent oral polio vaccine (tOPV) to a bOPV containing only type 1 and type 3 was implemented to remove all live-attenuated type 2 vaccine and its associated risk. While this coordinated withdrawal was preceded by the introduction of one dose of inactivated polio vaccine (IPV) into national immunization schedules and intensified efforts to increase type 2 population immunity, these efforts were not successful or timely in many countries, creating type 2 immunity gaps. Furthermore, outbreak responses to the expected cVDPV2 outbreaks were of uneven quality, used substantially more monovalent oral polio vaccine type 2 (mOPV2) than planned, and resulted in considerably more vaccine-derived poliovirus type 2 (VDPV2) emergences and cVDPV2 outbreaks than predicted. Since the switch, 64 cVDPV2 outbreaks have emerged, spreading to 33 countries in four regions and resulting collectively in 1572 cases of paralytic polio through 2020.¹⁶ In 2020, there were 1051 cases with cVDPV2 detected in 29 countries, of which 14 countries were affected for the first time in 2020.¹⁶ The recent increase in cases has been driven by expansive outbreaks in Afghanistan, Pakistan, Chad and Côte d'Ivoire, which collectively represent 59% of the 2020 reported case total. The COVID-19-related pause on polio campaigns from March to July 2020, coupled with related disruptions to essential immunization and IPV catch-up activities, also led to increased transmission. At the start of 2021, the risks associated with the spread of ongoing cVDPV2 outbreaks grew, as widening outbreaks threatened large populations that lack type 2 immunity. (See **Annex B** for the current epidemiological state.)

CURRENT CHALLENGES

The spread and continuation of current cVDPV2 outbreaks are driven by several factors, most notably declining mucosal immunity to type 2 virus among young children born after the switch; low essential immunization coverage with IPV; regional migration patterns that allow the virus to jump from one population to another; delays in detecting cVDPV2

¹⁶ The GPEI provides weekly updates on the global epidemiology of circulating vaccine-derived polioviruses, which can be accessed online (<https://polioeradication.org/polio-today/polio-now/this-week/circulating-vaccine-derived-poliovirus>).

outbreaks; limited SIA scope driven by limited global vaccine stockpile availability; delayed implementation of outbreak responses; and variable quality SIAs in outbreak response. When mOPV2 campaigns of large scope and uneven quality are carried out in these environments, it increases the risk of seeding new emergences in areas with low coverage and areas bordering response zones, thus prolonging the cycle.¹⁷ Competing country and donor priorities, limited political commitment and a lack of accountability for both countries and GPEI partners underpin these challenges.

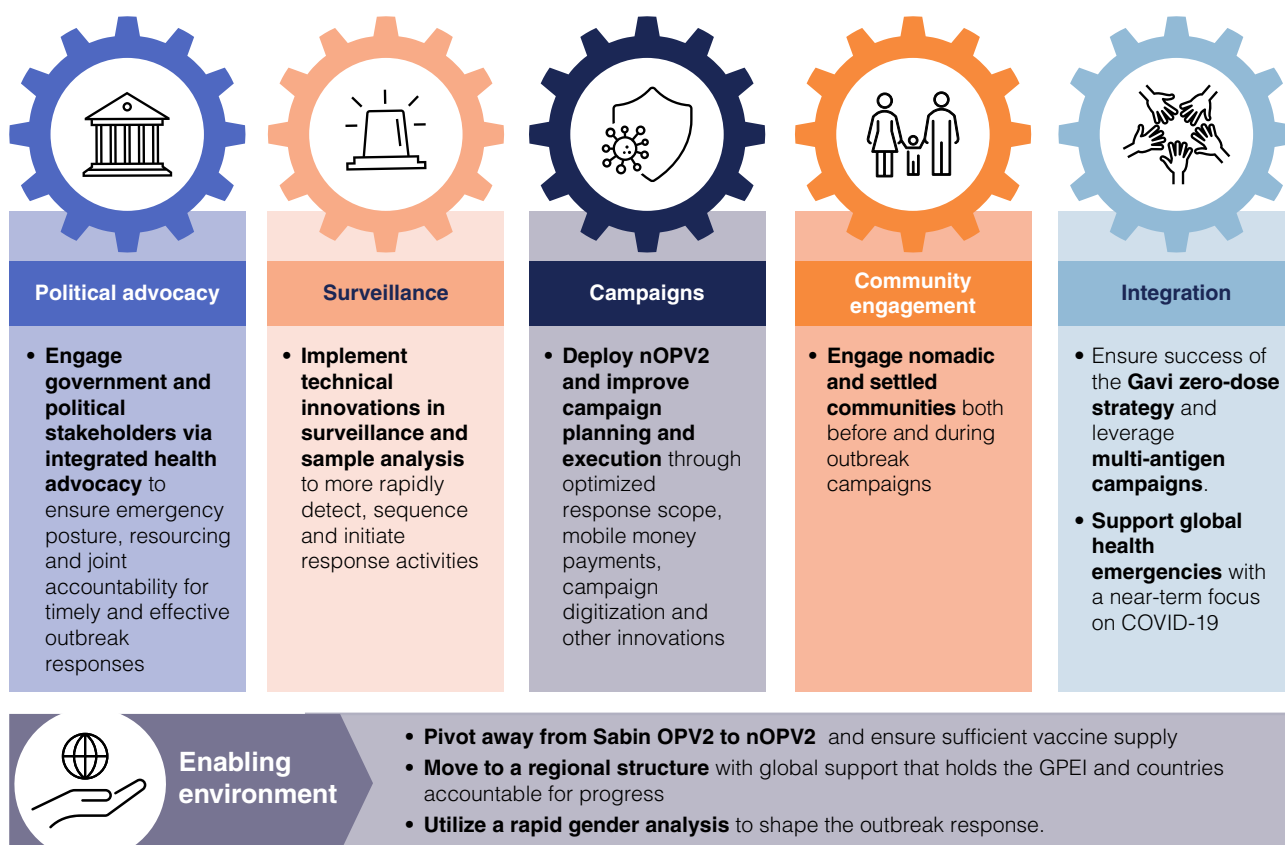
PATH TO STOP cVDPV2 TRANSMISSION AND PREVENT OUTBREAKS IN NON-ENDEMIC COUNTRIES

The GPEI will work on an emergency footing to ensure rapid case detection and strong outbreak response to quickly stop transmission of cVDPV2 and minimize the risk of seeding new emergences. Key to successful response is maintaining sensitive surveillance to quickly detect any poliovirus, followed by rapid response campaigns delivered with sufficient quality to achieve high levels of vaccination coverage linked to strong essential immunization services to minimize the risk of a poliovirus re-establishing a foothold.

New approaches to interrupt cVDPV2 transmission (see **Fig. 7**) include:

- targeted and coordinated political advocacy in outbreak countries to link polio outbreak preparedness and response to broader country health priorities;
- emergency command structures for response at the country, regional and global levels for rapid decision-making during outbreak detection and response;
- increased regional and country capacity to support surveillance and outbreak response;
- deployment of nOPV2 to minimize outbreak seeding, and other new tools, approaches and partners to improve surveillance, outbreak response speed and quality, and community engagement; and
- strong coordination with in-country EPI and essential immunization partners to identify zero-dose and under-immunized communities in polio-priority geographies.

Fig. 7. Goal Two strategic objectives and key activities



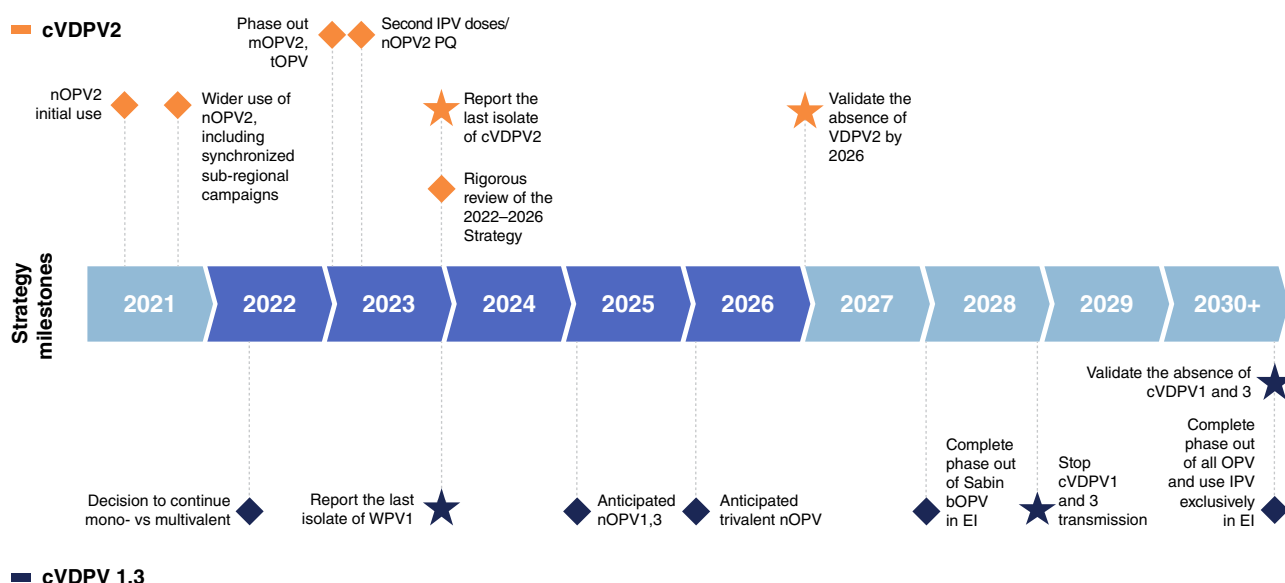
nOPV2 = novel oral polio vaccine type 2; OPV2 = oral polio vaccine type 2.

Source: WHO.

¹⁷ Sabin OPV has been critical to the worldwide reduction of polio cases and the global eradication of WPV2 and WPV3, as declared by the Global Commission for the Certification of the Eradication of Poliomyelitis (GCC) in 2015 and 2019, respectively. In rare instances, however, the live attenuated virus in the vaccine can cause neurological symptoms of poliomyelitis and become VDPV. Where population immunity is low, this VDPV can begin to circulate, causing an outbreak of cVDPV.

The programme aims to report the last isolate of cVDPV2 by the end of 2023, develop novel OPV for types 1 and 3 to stop all cVDPV transmission in 2028, and eventually transition to IPV-exclusive essential immunization. Key milestones and measures for success in relation to interrupting cVDPV transmission in outbreak and at-risk countries are identified below (see Fig. 8).

Fig. 8. Milestones for interrupting cVDPV transmission in outbreak and at-risk countries, 2021–2030+



bOPV = bivalent oral polio vaccine; cVDPV1 = circulating vaccine-derived poliovirus type 1; cVDPV2 = circulating vaccine-derived poliovirus type 2; cVDPV3 = circulating vaccine-derived poliovirus type 3; EI = essential immunization; IPV = inactivated polio vaccine; mOPV2 = monovalent oral polio vaccine type 2; nOPV1,3 = novel oral polio vaccine types 1 and 3; nOPV2 = novel oral polio vaccine type 2; OPV = oral polio vaccine; PQ = prequalification; tOPV = trivalent oral polio vaccine; VDPV2 = vaccine-derived poliovirus type 2; WPV1 = wild poliovirus type 1.

Source: WHO.

1. Create urgency and accountability through advocacy to generate greater political will

Political advocacy will be critical to increase government ownership and accountability and urgently stop cVDPV2 outbreaks. In the African Region, for example, there is a lack of awareness around the need for continued efforts to stop the growing spread of cVDPV2 outbreaks due to the region’s recent certification as WPV-free in August 2020. Additionally, the COVID-19 pandemic has shifted the focus of national public health to COVID-19 response, economic recovery and health security. While health and immunizations have never been higher on the global agenda, long-standing programmes like polio eradication are heavily impacted by severe political and financial resource constraints, resulting in insufficient urgency and prioritization of activities to end cVDPV2 outbreaks and keep regions WPV-free. The broader landscape of vaccine-related mis/disinformation also requires new advocacy tactics to garner political interest and engagement.

Key areas of evolution

To meet these challenges, the GPEI will rebuild political advocacy expertise across country, regional and global levels of the partnership, as well as bring in external partners with multidisciplinary expertise to ensure sufficient, dedicated capacity to this key area of work. Targeted political advocacy strategies will be essential to strengthening government ownership and accountability.

To achieve greater government support, the GPEI will:

- proactively and regularly engage government stakeholders and third-party influencers to ensure a consistent understanding of the challenges and actions needed to end cVDPV2 outbreaks, to listen and collect feedback on how the GPEI can better support governments, and to promote joint accountability in the GPEI’s partnerships with governments to urgently end all forms of polio;
- leverage regional platforms and partners (e.g. African Union and its health-focused entities), existing mechanisms (e.g. IA2030), ministerial subcommittees in the Eastern Mediterranean and African Regions, new targeted scorecards, local champions, civil society and faith-based organizations to elevate polio and drive accountability to end cVDPV2 outbreaks;

- communicate to government stakeholders the relevance of polio assets to other pressing country priorities, highlighting the value of polio tools, workforce and infrastructure as a key investment in broader emergency response and future pandemic preparedness. This will require coordination and collaboration with other health programmes to develop joint advocacy approaches, including essential immunization coverage for polio and other VPDs;
- with immunization partners, as well as with humanitarian actors and civil society organizations (CSOs), issue a call for urgent recovery from the impact of COVID-19 on immunization coverage to protect the most vulnerable from VPDs and to ensure children are immunized against polio in fragile states; and
- explore innovative financing opportunities to strengthen accountability and incentivize effective, urgent outbreak response. Where feasible, the GPEI will advocate for domestic contributions to support polio activities and assets to drive action towards ending cVDPV2 outbreaks while ensuring these assets are available to support health systems in the longer term.

This proactive advocacy approach will be informed by country- and regional-level political landscape analysis and stakeholder mapping; adapted in the context of other pressing country priorities; and continuously updated through ongoing, two-way dialogue with political and third-party stakeholders. Furthermore, global and regional advocacy efforts will be closely linked to the ministerial subcommittees, to regional and country accountability mechanisms and to expanded integration in outbreak countries.

What success looks like

Outcome 1: Heightened government ownership and political commitment measured by monitoring the number of countries declaring a public health emergency within a week of outbreak confirmation.

Outcome 2: Qualified staff who are quickly and reliably available to support outbreak response documented for both GPEI and government staff for every outbreak response and regularly reviewed as part of the regional accountability framework.

Outcome 3: Measurable domestic contributions towards outbreak response activities documented and reviewed for all outbreak responses.

2. Improve detection and response through sensitive surveillance

Interruption of cVDPV2 across all regions can only be achieved if outbreak response activities are informed by sensitive, pervasive and adequately rapid surveillance networks and tools. With the expansion of cVDPV2 outbreaks and additional countries considered to be at risk, surveillance methodologies must be rapidly expanded to include ES and community-based surveillance in more geographies as a supplement to traditional AFP surveillance.¹⁸ Furthermore, surveillance capacities must evolve and be maintained indefinitely to support IA2030 commitment to wider integration of VPD surveillance, maintaining International Health Regulations (IHR) reporting requirements, and to monitor for community transmission in the highly unlikely but high-impact case of a containment breach from a laboratory or vaccine manufacturing facility (see the **Preparing for the post-certification world** section).

Key areas of evolution

Although AFP surveillance and the Global Polio Laboratory Network (GPLN) continue to be the gold standard in poliovirus surveillance, concerns over the spread of cVDPVs and the need to sustain surveillance in perpetuity have prompted changes in the GPEI's approach to surveillance.

This transformed approach will be achieved via:

- supporting countries in transitioning to electronic surveillance systems that are adapted to national health information systems and national e-health policies and strategies to ensure all programmes can benefit from polio investment and interoperability;¹⁹
- supporting countries in establishing and taking ownership of rigorous quality standards for AFP surveillance; implementing and optimizing efficient, sustainable ES and community-based surveillance systems; and shifting poliovirus laboratory testing and sequence analysis to the country level, where possible;
- implementing innovations in sample tracking and transportation, targeted to geographies with the most pronounced delays;

¹⁸ Global Polio Eradication Initiative (GPEI). Global Polio Surveillance Action Plan, 2018–2020. Geneva: World Health Organization; 2019 (<https://polioeradication.org/wp-content/uploads/2016/07/GPEI-global-polio-surveillance-action-plan-2018-2020-EN-1.pdf>, accessed 15 June 2021). Revision in development.

¹⁹ For example, GIS data sets for polio microplanning can be integrated into national health information management systems and used for bednet delivery, alternate population estimates generated for polio can be integrated into existing national systems and used by other programmes, and mobile technologies that benefit polio can be used for other programmes.

- implementing direct detection and other new technologies for virus detection and characterization;
- adopting national and subnational supervisory, monitoring and oversight systems and activities that provide opportunities for continuous system evaluation, staff training and mentoring, and use of data for rapid response, such as web-based Information for Action (WebIFA) and electronic surveillance (eSURV);
- integrating with other VPD surveillance systems and meeting the GPEI's commitments as an integral component of the global strategy on comprehensive VPD surveillance;²⁰ and
- evolving surveillance, particularly in countries without active outbreaks, to be a shared responsibility between governments and the GPEI, laying the groundwork for transition to the post-certification world.

Reflecting GPEI priorities for integration, special focus will be brought to developing shared capacity within countries to support long-term VPD integration objectives, including field activities. In the near term, poliovirus diagnostic resources will be aligned and integrated with other VPD diagnostic procedures, where possible. Over the longer term, the GPEI will work to establish shared surveillance networks, laboratory capacity and information systems to improve efficiency, timeliness and coordination across all VPD surveillance.

Solutions to achieve faster detection of poliovirus (see the **Time is of the essence** panel) will be initially prioritized for current cVDPV2 outbreaks and high-risk countries to allow for improvements in campaign timeliness and effectiveness, including the transition to nOPV2 use. Some detection delays in the African Region (and some African countries in the Eastern Mediterranean Region) have slowed some outbreak responses and contributed to the spread of cVDPV2. Given the risk of outbreak spread, these countries must be prioritized for improvements in surveillance speed and sensitivity, tools and indicators, including ES. To shorten the process for launching a rapid response in places without recent oral polio vaccine type 2 (OPV2) use and following confirmation of poliovirus type 2 detection, risk assessment development should begin immediately rather than waiting for cVDPV2 confirmation.

What success looks like

Outcome 1: Consistent global implementation of surveillance standards measured by monitoring the percentage of districts achieving a non-polio acute flaccid paralysis (NPAFP) rate of >2/100 000 and environmental sites meeting a sensitivity threshold of at least 50% samples positive for enterovirus over six months or more.

Outcome 2: Increased speed of detection and precision of surveillance system demonstrated through (at least) 80% cases with adequate stool sample collection disaggregated by sex, and the proportion of WPVs and VDPVs reporting final lab results within 35 days of onset for AFP cases or ES sample collection.

Time is of the essence

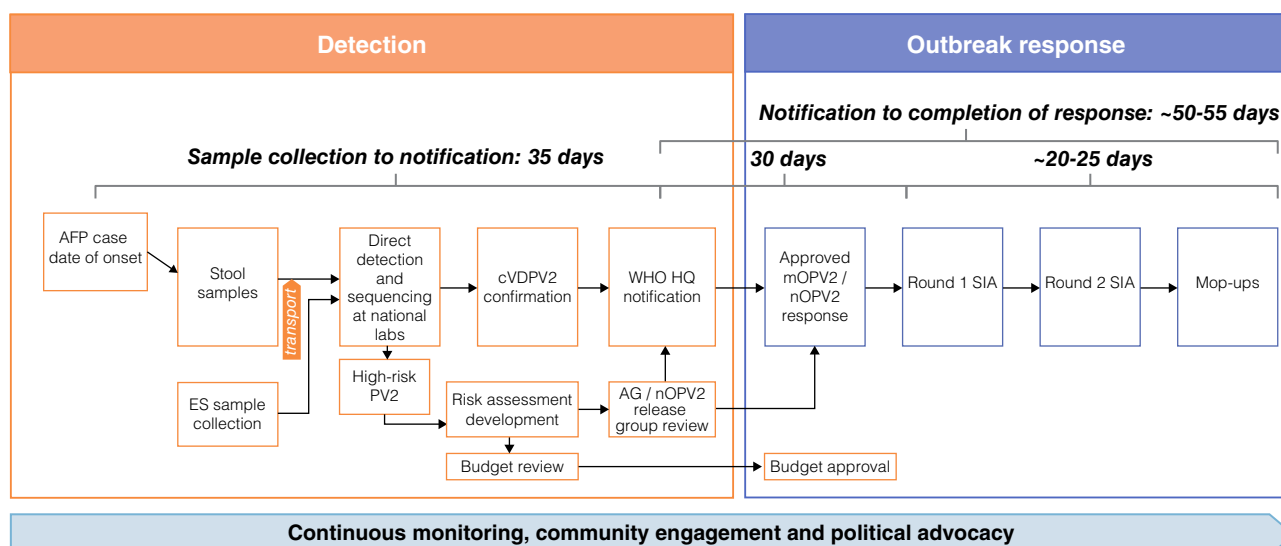
Critical to detecting and launching timely outbreak responses is the timeline between sample collection and cVDPV confirmation. As outbreaks have spread to countries that have long been polio-free, this timeline has expanded and contributed to delays in the notification of cVDPV2 outbreaks.

Opportunities for improvement at each step in the journey from field to laboratory confirmation will speed up outbreak response times. Detection of poliovirus directly from stool specimens is a new, faster methodology for poliovirus identification that will help reduce laboratory analysis time by up to one week. The reduction in analysis time additionally improves if direct detection is paired with on-site sequencing, avoiding bottlenecks in international sample transport (see **Fig. 9**). By reducing the length of time for processing AFP samples from the time of collection, results would be more promptly available for rapidly planning and implementing response activities. This process might also help achieve GAPIII containment targets on reducing the inoculation of cell cultures that allow poliovirus replication.* To be most effective in reducing time to laboratory results, direct detection needs to be further optimized for analysis of sewage samples, and complementary methods need to be developed to characterize polioviruses detected through rapid genetic sequencing in more laboratories.

* GAPIII: WHO Global Action Plan to minimize poliovirus facility-associated risk after type-specific eradication of wild polioviruses and sequential cessation of oral polio vaccine use, third edition. Geneva: World Health Organization; 2015 (http://polioeradication.org/wp-content/uploads/2016/12/GAPIII_2014.pdf, accessed 15 June 2021).

²⁰ Global strategy for comprehensive Vaccine-Preventable Disease (VPD) surveillance. WHO Immunization, Vaccines and Biologicals (IVB). Geneva: World Health Organization; 2020 ([https://www.who.int/publications/m/item/global-strategy-for-comprehensive-vaccine-preventable-disease-\(vpd\)-surveillance](https://www.who.int/publications/m/item/global-strategy-for-comprehensive-vaccine-preventable-disease-(vpd)-surveillance), accessed 15 June 2021).

Fig. 9. Desired future state for detection and outbreak response



AFP = acute flaccid paralysis; AG = Advisory Group; cVDPV2 = circulating vaccine-derived poliovirus type 2; ES = environmental surveillance; HQ = headquarters; mOPV2 = monovalent oral polio vaccine type 2; nOPV2 = novel oral polio vaccine type 2; PV2 = poliovirus type 2; SIA = supplementary immunization activity.
 Source: WHO.

3. Improve frontline success through changes to outbreak response operations

To quickly stop cVDPV outbreaks, vaccination response must be deployed rapidly following outbreak response identification in appropriately scoped, high-quality campaigns to stop transmission and prevent spread outside the outbreak response area (see **Fig. 9**). To do this, the GPEI will further optimize outbreak response through updated operational guidance, streamlined decision-making and emergency response structures, cross-border coordination, adequate resourcing and operational improvements to facilitate rapid mobilization for outbreak response in countries.

Key areas of evolution

The introduction and scale-up of nOPV2 for cVDPV2 outbreak response is a primary focus in this new strategy. The expected reduced risk of nOPV2 seeding new outbreaks will permit increasing the scope of vaccine use in OPV2-naïve populations, which should allow countries to more quickly stop transmission and prevent spread outside of response zones. To be effective, nOPV2 use must be accompanied by improvements in response planning, execution and monitoring to ensure rapid, high-quality responses. (See the **nOPV2: a much-anticipated tool** panel.)

Outbreak response planning and execution improvements will include:

- ensuring optimal vaccine use, including nOPV2, based on a prevailing epidemiological situation and country readiness for nOPV2 use under the Emergency Use Listing (EUL) procedure;
- accelerating emergency response through rapidly endorsed outbreak response plans at the regional level and a functioning incident command structure at all levels within the GPEI to guide and direct outbreak response, including the rapid transfer of funds from regions to countries to field workers (see the **Moving money faster** panel);

Moving money faster

Cash-based payments for outbreak campaign operations have led to delayed campaigns, poor-quality operations and a demotivated workforce due to late payments.[†] In the new strategy, the GPEI will scale up mobile money (digital payment) programmes to accelerate funding distribution, improve the quality of outbreak response and boost worker satisfaction.[‡] In one country (Côte d'Ivoire), the average payment time for the second campaign round was two hours, as opposed to a three-week average for cash payment processing, which demonstrates the substantial impact mobile money has on outbreak campaigns.

[†] In the first quarter of 2020, 50% of polio outbreak campaigns in the African Region were delayed or negatively impacted by delayed distribution of funds to the operational level.

[‡] More than 50 000 frontline campaign workers in Côte d'Ivoire, Mali and Ghana were paid rapidly and transparently using mobile money in 2020.

- utilizing and expanding existing in-country government coordination mechanisms to establish polio control rooms, enabling the use of real-time data for decision-making and an incident management structure to streamline emergency operations;
- optimizing outbreak preparedness and response capacity in high-risk countries via a regional contracting mechanism providing both rapid deployment and flexibility to move technical support staff between countries based on the evolving epidemiology, performance and accountability and through identifying synergies with the outbreak response plans reported annually to the regional certification commission, actions of the measles outbreaks strategic response plan and other VPD initiatives;²¹
- utilizing rapid gender analyses, local risk assessments and modelling inputs to optimize the outbreak response scope, including approaches specifically targeting nomadic and other mobile communities;
- digitizing the entire outbreak response, from planning to intra- and post-campaign monitoring, to utilize an evidence-based approach for clear assessments of response coverage and quality, including age- and sex-disaggregated monitoring data; and
- ensuring a stronger role for women in outbreak response operations through increased participation in outbreak response oversight, management, supervision and delivery.

The GPEI is updating the standard operating procedures (SOPs) and SIA manuals, reflecting new developments, realities and tools, and the need to improve the speed and quality of campaigns to ensure outbreaks are stopped rapidly and efficiently.²² To ensure the successful rollout of nOPV2, comprehensive planning has mapped potential scenarios and identified pivotal decision points to support country nOPV2 use (see **Annex G**).

nOPV2: a much-anticipated tool

OPV has been used for 50 years and has been effective in stopping cVDPV2 in response areas. Between 2019 and 2020, nearly 80% of cVDPV2 outbreaks were stopped after two rounds of Sabin OPV2. However, due to the risk of the vaccine virus originally contained in OPV regaining neurovirulence and seeding new outbreaks, the programme began investments in 2011 towards the development of a nOPV2. The new vaccine entered Phase I and II trials in 2017 and 2019, respectively, which demonstrated safety, immunogenicity and genetic stability that will make the vaccine virus less likely to revert to a form that can cause paralysis. With EUL received in late 2020, nOPV2 is now being introduced in the first outbreak countries to complete readiness verification.

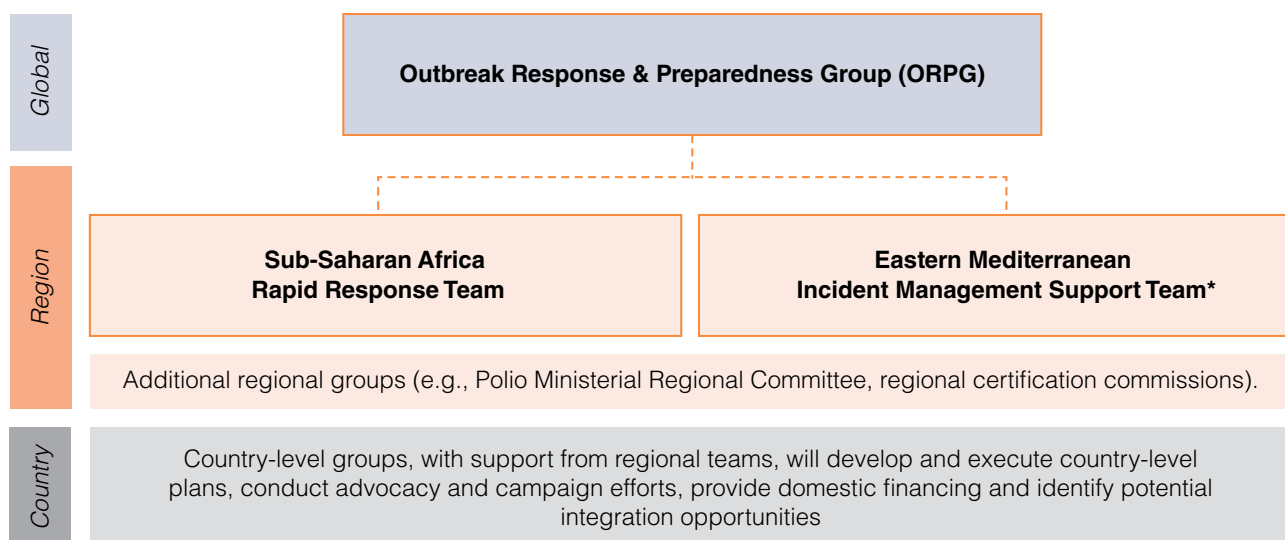
The need for nOPV2 is urgent. Introducing nOPV2 is a decision made by national immunization partners and authorities, such as the ministry of health, the national immunization TAG and national regulatory authorities. As countries meet the requirements for nOPV2 use, they must commit to continuously monitoring the vaccine's safety and effectiveness under the EUL agreement and in partnership with the GPEI and the vaccine manufacturer. As more countries complete readiness verification for nOPV2 and the initial use period gives way to wider use, Sabin OPV2 use in outbreak response is expected to decrease throughout 2021. If data from the field and ongoing studies with nOPV2 continue to be assessed as favourable, mOPV2 will be phased out. For strategy planning purposes, the GPEI anticipates substantially larger SIAs with nOPV2 in response to any outbreak and assumes that any individual outbreak will be stopped per the timelines in the outbreak response SOPs. (See **Annex G** for details on contingency planning.)

Responsibility and accountability for outbreak response will rest with three GPEI groups (see **Fig. 10**). The Outbreak Response and Preparedness Group (ORPG) will interface between the global and regional teams working to respond to polio outbreaks. Activities in regions most impacted by cVDPV2 outbreaks will rest with two groups focused on outbreaks and response: the Sub-Saharan Africa Rapid Response Team and the regional Incident Management Support Team for non-endemic nations in the Eastern Mediterranean Region. These teams are the decision-making bodies for response operations in their respective regions, with responsibility for the comprehensive management of outbreak response activities. ORPG will manage operational capabilities in the event of outbreaks in other regions.

²¹ Measles outbreaks strategic response plan 2021–2023. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/bitstream/handle/10665/340657/9789240018600-eng.pdf>, accessed 15 June 2021).

²² Updated outbreak SOPs and SIA manuals will be posted on the GPEI website as they become available (<https://polioeradication.org/tools-and-library/resources-for-polio-eradicators/gpei-tools-protocols-and-guidelines>, accessed 15 June 2021).

Fig. 10. Global and regional outbreak response teams



*Includes non-endemic countries in the Eastern Mediterranean Region and overlaps with countries in the Middle East and North African Region (United Nations).
 Source: WHO.

An accountability framework will be established in alignment with the outbreak SOPs and regularly monitored by an independent audit function to assess performance. The regional operations teams will be linked to ministerial subcommittees to facilitate country accountability within existing regional mechanisms and review outbreak indicators regularly.²³ Additionally, the Africa Regional Certification Commission, the Afghanistan and Pakistan TAGs and other appropriate advisory bodies will increase their focus on VDPV response review and validation to provide independent voices on regional operations and GPEI performance.

What success looks like

- Outcome 1:** Improved campaign quality, particularly to reduce persistently missed children in SIAs, measured by monitoring the percentage of outbreaks closed in two rounds plus mop-up within six months of outbreak identification.
- Outcome 2:** Timely outbreak preparedness and response measured by monitoring the average number of days between outbreak confirmation and the start of the first SIA.
- Outcome 3:** Successful and timely nOPV2 rollout measured by tracking the percentage of target countries that meet the requirements for nOPV2 use and tracking the number of countries using nOPV2 for outbreak response.

Rapid gender analysis in outbreak response

When gender becomes integral to rapid outbreak assessment, it enables a more effective response. Rapid gender analyses, as defined in the SOPs, strengthens outbreak response and supports interruption.* By collecting and analysing sex-disaggregated data and gender-sensitive information, frontline teams develop a more robust understanding of the population that improves community engagement and increases vaccine acceptance. To support the mainstreaming of gender activities in outbreak contexts, a forthcoming checklist will outline activities from the recruitment of gender-balanced teams (including surge staff), to the collection and analysis of sex-disaggregated data for AFP surveillance and campaign monitoring, to the incorporation of gender-specific social data into social mobilization, communication and community engagement activities.

* Global Polio Eradication Initiative (GPEI). Standard operating procedures: responding to a poliovirus event or outbreak, version 3.1. Geneva: World Health Organization; 2020 (<https://polioeradication.org/wp-content/uploads/2020/04/POL-SOP-V3.1-20200424.pdf>, accessed 15 June 2021). GPEI rapid gender analysis in outbreak response will be guided by the Inter-Agency Standing Committee Multi-Sector Initial Rapid Assessment (MIRA) and CARE International's Rapid Gender Analysis. See Inter-Agency Standing Committee (IASC) Needs Assessment Task Force. Multi-sectoral initial rapid assessment guidance, revised July 2015 (https://interagencystandingcommittee.org/system/files/mira_manual_2015.pdf, accessed 15 June 2021); In Practice, Rapid gender analysis [website]. Geneva: CARE International; 2021 (<https://insights.careinternational.org.uk/in-practice/rapid-gender-analysis>, accessed 15 June 2021).

²³ These committees will include country ministers of health with support from WHO and UNICEF regional directors who will provide the oversight and monitoring of country performance.

4. Generate vaccine acceptance through context-adapted community engagement

In outbreak and at-risk countries, the GPEI will adopt tactics to optimize community engagement and promote vaccine awareness and acceptance. The GPEI will expand its community engagement and listening models to include digital platforms and utilize larger social networks and consortia of partners to build momentum for outbreak response through combating misinformation and supporting nOPV2 and COVID-19 vaccine rollouts.

Key areas of evolution

The polio programme's outbreak communications will begin well in advance of a vaccinator showing up at the doorstep to offer polio vaccines. Using lessons learned and universal best practices, the GPEI will reimagine its approach to rapidly create enabling environments for outbreak campaigns by:

- shifting from a campaign-focused approach to instead making investments in sustained trust and relationship-building with communities, as well as outbreak preparedness and prepositioning of communication resources in the context of local social norms;
- utilizing the Minimum Quality Standards and Indicators for Community Engagement to review successes and seek opportunities for improving social mobilization activities in outbreak settings;²⁴ and
- including community engagement indicators in campaign preparedness dashboards to ensure social mobilization activities are tracked against meaningful indicators and evidence-based "online" and "offline" improvement strategies.



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²⁴ Minimum quality standards and indicators for community engagement. New York: United Nations Children's Fund; undated (https://www.unicef.org/mena/media/8401/file/19218_MinimumQuality-Report_v07_RC_002.pdf, accessed 11 June 2021).

Furthermore, the GPEI will explore new local partnerships, social networks and digital platforms to collect qualitative data that will inform communication action aimed at reaching all types of missed children and repositioning communication resources. A better understanding of the social reasons behind and challenges to community resistance to polio vaccines in the context of outbreaks is of utmost importance, particularly in countries at the highest risk of cVDPV emergence in the African and Eastern Mediterranean Regions.

Robust and well-supported communication related to cVDPV2 outbreaks and nOPV2 preparedness, readiness verification and use – carefully balanced and managed in the broader vaccine misinformation landscape – is becoming an integral part of the GPEI’s outbreak response strategy.

To address the many complexities around vaccine introduction in this context, the GPEI will develop communication products and tactics that capitalize on key milestones to reiterate the crises of cVDPV2 outbreaks and the GPEI’s strategy to interrupt them, including the potential role of nOPV2. This content will be prepared for rapid deployment in case of an outbreak and will help to gain the momentum across the broad range of stakeholders for swift and high-quality outbreak response.

What success looks like

Outcome 1: The creation and deployment of capacities and products to rapidly increase campaign awareness and build confidence in polio vaccines in all settings, conducting polio outbreak SIAs, measured by monitoring the percentage of SIAs showing evidence that campaign awareness was >90% of all households (based on ICM and/or LQAS).

New tactics on the digital front line

To address vaccine infodemics and combat misinformation that leads to vaccine hesitancy or refusals, the GPEI has adopted new tactics: (a) “listening” by systematically monitoring the digital and social media ecosystem through analytical platforms and technology; (b) assessing the scale and potential impact of vaccine-related rumours and misinformation to immunization activities; and (c) proactively debunking or prebunking harmful digital content, fake news and misinformation about vaccines. To mitigate the risk of rumours about nOPV2, the GPEI has operationalized projects in outbreak countries that successfully track harmful social media and digital content to adapt strategies to respond to vaccine refusals and mitigate risks to the programme, including potential violence or harm to polio workers. This data-driven, innovative approach will continue to evolve with available technologies to inform preparedness and response systems in high-risk outbreak countries.



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5. Expedite progress through expanded integration efforts and unified partnerships

The GPEI will transform how it delivers vaccines to children in and beyond outbreak countries. Integration efforts, particularly with essential immunization programmes and VPD surveillance, will play a critical role in addressing cVDPV outbreaks by working to elevate population immunity, detect outbreaks in all regions with a focus on unreached and under-immunized communities and sustain capacity to respond to future outbreaks.

Within outbreak and at-risk countries, essential immunization coverage continues to be variable, which hinders the ability to maintain sufficiently high levels of population immunity to poliovirus. In addressing these challenges, integration will promote greater efficiencies through the co-delivery of interventions deemed to be on the critical path to eradication, as well as through enhanced coordination, planning, management and resource mobilization.

Key areas of evolution

The GPEI will evaluate opportunities to integrate with other health programmes and initiatives using the integration decision-making framework (see **Annex D**). Outbreak response teams will coordinate with EPI and immunization partners to boost essential immunization performance in outbreak areas and neighbouring geographies from the initial planning stages and between OPV rounds. Using the outbreak event as an opportunity to flag systemic EPI weaknesses, the programme will work with local authorities and broader immunization partners, such as Gavi, to mobilize support to strengthen essential immunization and PHC. During the latter phases of outbreak response, multi-antigen or intervention activities will be considered.

The GPEI at the global and regional levels has a role in resource mobilization and advocacy to direct existing funds for expanding PHC services including essential immunization performance and outreach vaccination, along with IPV. This will be done by using the incident management structure to coordinate broadly with governments, EPI, PHC and partners to identify zero-dose and under-vaccinated communities for outreach, sharing microplan information to improve essential immunization targeting and coverage, and integrating communication and messaging to promote essential immunization and PHC.

To drive towards alignment and accountability with integration, the GPEI will:

- engage within partner operational frameworks and review mechanisms, such as the World Bank annual review, IA2030 ownership and accountability mechanisms and structures, and Gavi 5.0 operationalization and review mechanisms, to ensure investments mutually support polio eradication and broader health benefits; and
- use polio assets and high-level advocacy, including through the POB, in support of COVID-19 vaccine procurement, registration, targeting and rollout.

By leveraging the outbreak event to re-energize national, provincial and local health authority planning and action, the GPEI – in collaboration with Gavi and other partners – will aim to leave the system on a path to recovery at the closure of an outbreak and strengthen outbreak preparedness measures.

What success looks like

Outcome 1: Alignment between polio and immunization, resulting in HSS and EPI investments reflecting polio programme strategic objectives, and polio contributing to IA2030 and country immunization goals, measured by monitoring VPD SIAs that co-deliver bOPV and the percentage of polio-priority subnational geographies where joint or collaborative investment is taking place by Gavi and the GPEI.

Outcome 2: Continued support to broader global and national public health initiatives as a pathway towards a successful programme transition, measured by monitoring the amount of PHC investments directed towards polio high-risk areas in outbreak and at-risk countries, as well as polio human resource contributions towards the COVID-19 response.



Enabling Environment

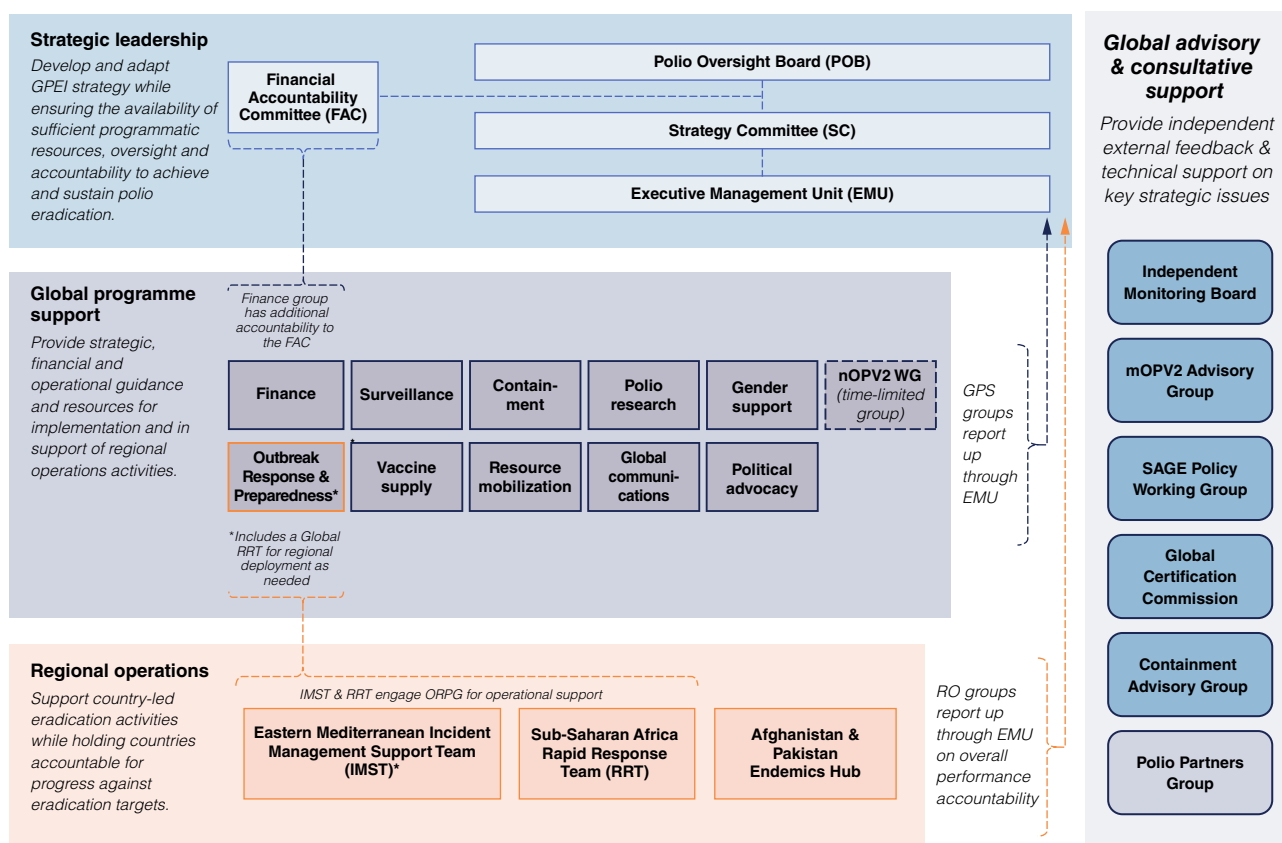
Successful execution of the **Polio Eradication Strategy 2022–2026** requires an enabling environment created through efficient operational structures; critical commitments to gender-responsive programming and operations; effective, clear and well-coordinated communication strategies; carefully managed vaccine supply; ongoing investments in research innovations; a data-driven M&E framework; and financial modelling and resource mobilization.

1. GPEI STRUCTURE

The GPEI conducted a comprehensive governance and management review to restructure the programme to be fit for the purpose of polio eradication. The restructuring process included input from a broad range of partners (donors and governments), advisory groups (including the Independent Monitoring Board) and management groups. The resulting assessment identified several key areas requiring structural change to address role clarity, decision-making and accountability.

Critical changes are under way to enhance the agility, efficiency and effectiveness of the GPEI programme across the global and regional levels, including streamlining the GPEI's organizational structure (see **Fig. 11**), empowering implementers and introducing a system of accountability across the polio partnership.

Fig. 11. GPEI revised organigram



* Includes non-endemic countries in the Eastern Mediterranean Region and overlaps with countries in the Middle East and North African Region (United Nations).

Note: The GPEI organigram is under review and further structural changes may be implemented as part of the continued management review and governance process.

GPS = global programme support; mOPV2 = monovalent oral polio vaccine type 2; nOPV2 WG = Novel Oral Polio Vaccine Type 2 Working Group; RO = regional operation; SAGE = Strategic Advisory Group of Experts on Immunization.

Source: WHO.

Broadly, these changes to the GPEI structure reflect the programme’s commitment to:

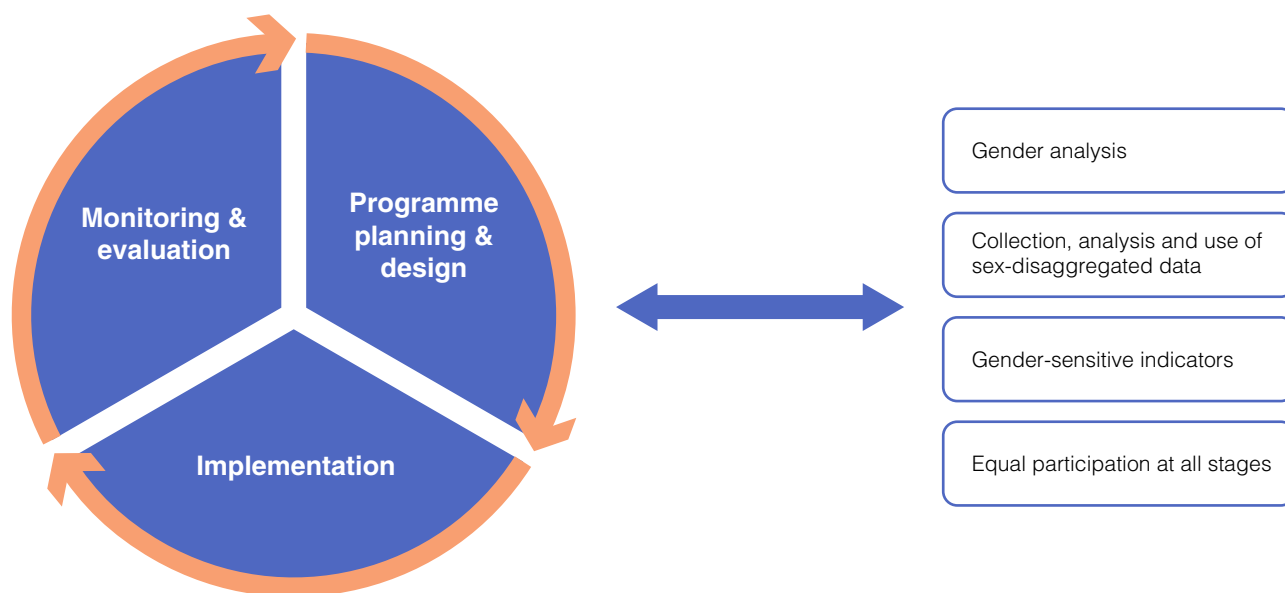
- giving staffing priority to national, provincial and district teams that will have decision-making authority to determine all field-level actions;
- redefining the relationship between regional and global offices to orient both towards more effective country support. Regional offices will provide technical advisement and administrative and logistical support. Global offices will carry out research, define technical guidance, provide high-level advocacy, mobilize and manage resources, and provide assistance to regions and countries where local resources are insufficient to overcome challenges; and
- building new strategic alliances where they have comparative advantage, such as engagement and advocacy with hard-to-reach communities.

Further information on the process, assessment and recommendations that informed these changes to the GPEI structure is available in **Annex H**.

2. GENDER EQUALITY

The GPEI **Gender Equality Strategy 2019–2023**, endorsed by the POB, guides the programme on gender equality as a powerful determinant of health outcomes and a critical enabling factor for progress towards polio eradication.²⁵ To strengthen the programme’s gender-responsiveness and achieve polio eradication, a gender perspective will be mainstreamed into the different stages of programme planning and design, implementation and M&E (see **Fig. 12**).²⁶ By taking a systematic approach to gender mainstreaming, the programme addresses gender-related barriers to vaccination, improves immunization outcomes and increases women’s meaningful participation in decision-making and leadership roles,²⁷ demand creation and health service delivery.

Fig. 12. Gender-responsive programming



Source: *Gender Equality Strategy 2019–2023*.

²⁵ Global Polio Eradication Initiative (GPEI). *Gender Equality Strategy 2019–2023*. Geneva: World Health Organization; 2019 (<https://polioeradication.org/wp-content/uploads/2020/10/Gender-Strategy.pdf>, accessed 15 June 2021). See also Gender [website]. Geneva: World Health Organization; 2021 (<https://polioeradication.org/gender-and-polio/gender-and-polio-eradication>, accessed 15 June 2021).

²⁶ There are several approaches and tools to mainstream gender in health. The GPEI will be guided by the WHO Gender Analysis Matrix and the practical guide on Immunization and Gender by the UNICEF Regional Office for South Asia. These approaches will be complemented with additional tools and guidance, depending on the country context and scope of the analysis.

²⁷ A GPEI-wide staff survey carried out in 2018 identified women’s under-representation in senior-level roles and gender parity gaps.

This systematic approach to gender mainstreaming, particularly within country programmes, will:

- increase ownership of and accountability for mainstreaming gender considerations into all aspects of the programme;
- institute specific field-level mechanisms to prioritize the safety of polio workers and beneficiaries;
- create a safe work environment for all staff and contractors and enforce GPEI policies on PSEA and safeguarding;
- strengthen data collection and analysis and complement quantitative data with robust qualitative social data, especially through the community engagement work stream;
- build a formal GPEI partner coordination mechanism on gender that will address areas such as training, data collection and analysis, and technical support; and
- ensure specified and dedicated financial resources.

Through the budget process, the GPEI will develop gender markers to ensure adequate resources for gender activities and to track allocations and expenditures, with at least 1% for direct funding allocations to support gender-related activities (see the **Tracking resources to target gender equality** panel under **Finance and costing**).

Programme performance and leadership on gender mainstreaming are guided by the *Gender Equality Strategy logframe* (see **Annex I**), with dedicated KPIs to monitor progress towards defined expected results (see **Annex F**).

Closing the gender data gaps

The collection, analysis and use of sex-disaggregated data are crucial components of gender-responsive programming. The GPEI is one of the few global health programmes with the ability to universally collect sex-disaggregated data through the poliovirus surveillance system and communication for development (C4D) data.

The GPEI *Gender Equality Strategy* is committed to:

- ensuring that all relevant programmatic data are disaggregated by sex and other critical variables and that these data are analysed to find and address gaps; and
- providing training for all relevant staff on the importance of and requirements for collecting and analysing disaggregated data.

Through the GPEI Gender Data Working Group, polio partners commit to further strengthening data collection and analysis and other gender metrics to inform and guide programming and ensure that sex or gender discrepancies can be effectively identified, tackled and resolved.

3. COMMUNICATIONS

Like other immunization programmes, the GPEI is adapting to a fast-paced communications and media environment where issues around vaccines, testing, access and equity are in the public discourse and can be politically charged, particularly in a post-COVID-19 context. While unprecedented public interest and media attention on COVID-19 and vaccines have provided an opportunity to highlight the importance of immunization, it also comes with complex risks. The pandemic and the intense focus on vaccines have profoundly affected the public awareness of and trust in global health authorities and organizations. Even in communities less saturated by media technologies, parents and caregivers are inundated with information and misinformation that shape and reinforce health beliefs and behaviours.

Effective, clear and well-coordinated communication strategies are essential to restore and reinforce social norms around vaccination, increase vaccine uptake and manage public narratives in the context of the COVID-19 pandemic, related mis/disinformation and vaccine hesitancy. Communication efforts will continue to be critical to support polio immunizations, to ensure stakeholders' clear understanding of the remaining challenges to interrupting WPV1 transmission and ending cVDPV outbreaks, and to sustain confidence in polio eradication.

Strong communication efforts will be prioritized to help build the enabling environment needed to support key areas of this strategy, including successful nOPV2 introduction, strengthened community engagement and political advocacy, and overall confidence in the feasibility of achieving a polio-free world.

The GPEI will continue to invest in communication solutions at the country, regional and global levels by:

- addressing social and behaviour barriers, mitigating risk to the programme and leveraging opportunities for polio vaccine delivery and acceptance;
- developing and implementing GPEI crisis communication strategies for early detection and response to vaccine infodemics, informed by continuously improved social listening data, research tools and communications interventions;
- engaging social influencers, programme advocates and other prominent public figures to help reframe polio immunizations as an apolitical public health agenda and a global priority;
- building capacity and strengthening coordination efforts across communication partners and staff, as well as frontline workers and other personnel, to navigate the complex public immunization space, use interpersonal skills for community engagement and hone digital skills to expand reach, influence and capacity for timely and targeted action; and
- continuing to help shape and manage global, regional and country narratives on the polio programme and polio vaccines by ensuring the availability of clear, accurate information to mitigate communications-related risks and maintain confidence in polio eradication.

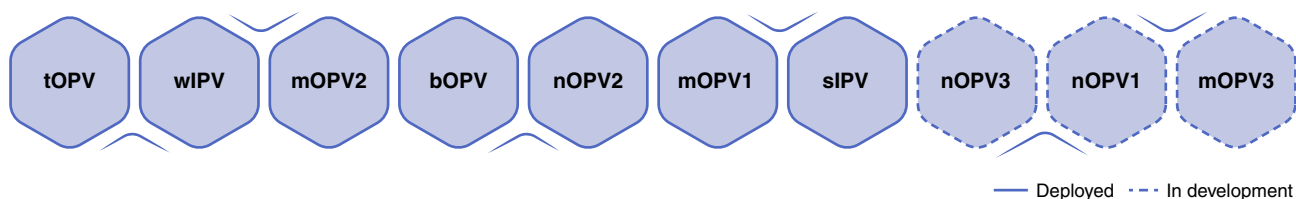
To ensure the alignment of global and community-level communication strategies, the GPEI's Global Communication Group brings together C4D, crisis and emergency risk communication and external communication expertise with coordination across global and regional communication teams. The Global Communication Group also coordinates closely with the Political Advocacy Group and Resource Mobilization Group to support the work required to ensure clear, aligned messaging across the GPEI partnership around political advocacy and fundraising opportunities (see **GPEI structure, Fig. 11**).

4. VACCINE SUPPLY

A reliable and well-managed vaccine supply is essential to achieve polio interruption; it is also required to reach polio eradication certification. To ensure an uninterrupted supply of requisite oral and inactivated polio vaccines (see **Fig. 13**), the GPEI aims to:

- supply a mix of effective and affordable bOPVs and monovalent OPVs, licensed in countries the GPEI supports, to stop endemic poliovirus transmission and mitigate the risk of transmission in non-endemic countries;
- establish and maintain a global stockpile of OPVs to respond to poliovirus outbreaks that may occur after global certification of eradication and after OPV withdrawal from essential immunization; and
- ensure a supply of a mix of inactivated vaccines to protect populations from polio-induced paralysis.

Fig. 13. Polio vaccines, current and future, 2022–2026



bOPV = bivalent oral polio vaccine; mOPV1 = monovalent oral polio vaccine type 1; mOPV2 = monovalent oral polio vaccine type 2; mOPV3 = monovalent oral polio vaccine type 3; nOPV1 = novel oral polio vaccine type 1; nOPV2 = novel oral polio vaccine type 2; nOPV3 = novel oral polio vaccine type 3; sIPV = Sabin inactivated polio vaccine; tOPV = trivalent oral polio vaccine; wIPV = wild-strain inactivated polio vaccine.

Source: WHO.

Polio vaccine supply landscape

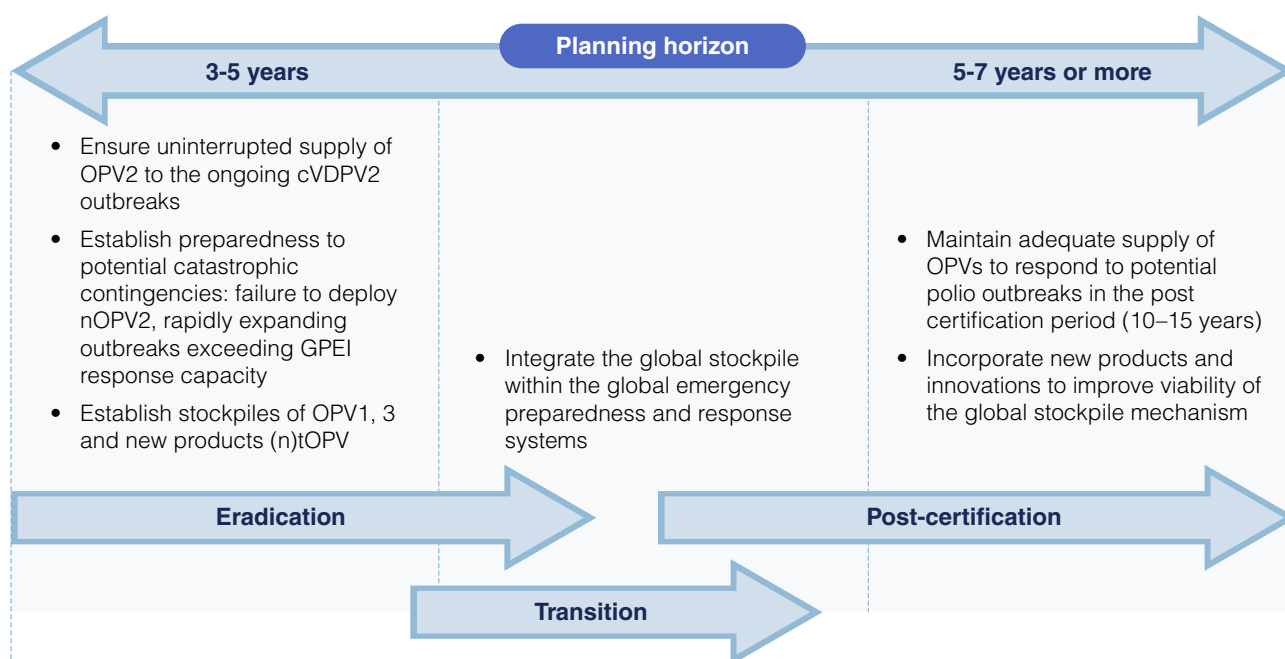
Global stockpile of OPV: The global stockpile of OPV is a long-term mechanism that will ensure a supply of OPV beyond the current GPEI strategy into the post-certification period (see **Fig. 14**). The stockpile was established to supply OPVs in response to poliovirus outbreaks in the post-certification period and after OPV withdrawal from essential immunization. The composition of the stockpile will consist of a range of monovalent, polyvalent, Sabin and novel vaccines for all three poliovirus types. The global stockpile currently ensures the supply of the novel and Sabin OPVs against poliovirus type 2 (nOPV2, Sabin mOPV2 and tOPV). Vaccines against poliovirus types 1 and 3 will be added within the lifetime of this strategy. WHO owns and governs the global stockpile on behalf of the GPEI. Its day-to-day management is conducted jointly by UNICEF and WHO based on a bilateral agreement between the two agencies. In the scope of the current strategy, the planning and oversight of the global stockpile is conducted by the Vaccine Supply Task Team in collaboration with the Novel Oral Polio Vaccine Type 2 Working Group (nOPV2 WG), ORPG and other technical teams, when necessary. Changes to the global stockpile require review and endorsement by the Strategy Committee (SC) and POB.

bOPV: During the lifespan of the current GPEI strategy, as the programme approaches and achieves WPV interruption, bOPV supply will be gradually reduced. The programme will maintain a steady supply of low-cost vaccines to meet preventive SIA needs and a sufficient buffer stock to mitigate short-term increases in vaccine demand, which include changes to the SIA calendar and responses to poliovirus types 1 and 3 outbreaks and events.

IPV: Working closely with Gavi, the GPEI will continue its focus on a healthy market for IPV, which includes sufficient availability, a diversified supplier base and affordable prices. This collaboration will allow IPV to be managed holistically as part of overall immunization system vaccine procurement efforts, whether as a stand-alone vaccine or as part of an IPV-containing hexavalent vaccine. Guidance from advisory bodies, including SAGE, its Polio Working Group and the IMB, will be critical to proposing appropriate, evidence-based strategies for mitigating risks through prioritized IPV allocation, where needed. In the coming years, GPEI partner agencies will support countries as they introduce a second IPV dose into their essential immunization systems in alignment with the SAGE recommendation.²⁸

New products: The GPEI is also working to expand its portfolio of polio vaccines. Over the lifespan of this strategy, the GPEI is expected to deploy novel OPV types 1 and 3 as monovalent and combination vaccines, which, like nOPV2, are expected to be more genetically stable than their Sabin counterparts. In addition, a range of new IPV products are being developed.

Fig. 14. Global OPV stockpile objectives and planning horizon



cVDPV2 = circulating vaccine-derived poliovirus type 2; nOPV2 = novel oral polio vaccine type 2; (n)tOPV = (novel) trivalent oral polio vaccine; OPV = oral polio vaccine; OPV1,3 = oral polio vaccine types 1 and 3; OPV2 = oral polio vaccine type 2.
Source: WHO.

²⁸ Meeting of the Strategic Advisory Group of Experts on Immunization, 31 March–1 April 2020: conclusions and recommendations. Wkly Epidemiol Rec. 2020;22:241–56 (<https://apps.who.int/iris/bitstream/handle/10665/332218/WER9522-eng-fre.pdf>, accessed 15 June 2021).

5. RESEARCH

R&D has played and continues to play a critical role in polio eradication. Research is an enabling factor for identifying effective eradication activities, securing and consolidating the programme's achievements, and defining policies for the post-certification era (see **Annex J** for the current R&D pipeline).

The Polio Research Committee (PRC) ensures strong coordination and collaboration on the programme's overall research agenda across GPEI partner agencies. Research teams from partner agencies, in coordination with groups such as the PRC, contribute to identifying knowledge gaps, advising on research needs, and tracking new data and outcomes. Research data coordinated by this mechanism are fed to SAGE for strategic decisions and recommendations.

One key area of focus is the R&D of new polio vaccines, including:

- novel, genetically more stable oral polio vaccines (nOPV2 as the current high-priority vaccine, as well as novel oral polio vaccine type 1 (nOPV1) and type 3 (nOPV3)) to eventually replace Sabin OPV following the prequalification and eventual licensure of these vaccines;
- Sabin IPV to provide a cost-effective supplement to current IPVs to satisfy global market requirements;
- polio virus-like particle (VLP) vaccines that could become the ideal vaccine for the post-certification period, as they can be produced outside of containment requirements; and
- messenger ribonucleic acid (mRNA) platform technologies for developing non-infectious polio vaccines.

Prioritizing the solutions laid out in this strategy requires targeted research (see the **Array of polio research areas and impact** table in **Annex J**). Identifying knowledge gaps and pursuing new R&D areas to support innovation will go a long way towards creating an enabling environment for achieving and sustaining global polio eradication.

With this strategy's focus on the intensified delivery of polio vaccines in essential and supplementary immunization, research will support improved coverage through field pilots that span epidemiological and operational areas. Pilots will contribute to improving programme communication, strengthening community engagement, minimizing vaccine hesitancy, ensuring gender equity and integrating polio activities with other health and development services. Increased coordination with surveillance and the GPLN will strengthen innovation around rapid detection and diagnostic tools, further enabling the strategy's success.

R&D has always been rated as providing high value for money and has become even more relevant in the current context of polio eradication. The data and experiences of polio research will be very useful in leveraging the legacy of scientific contributions in the delivery of other global public health interventions.

6. MONITORING AND EVALUATION FRAMEWORK

To assess progress against the major milestones and targets outlined in this document, the GPEI has developed a high-level M&E framework with specific desired outcomes and KPIs (see **Annex F**). While programme-specific areas have dedicated in-depth designed indicators, this framework provides a tool to review progress made against the strategic objectives and success-driving elements for achieving eradication. The GPEI will assess progress made against each of the KPIs on a quarterly basis. The SC will review progress against KPIs at the outcome level and, if necessary, will raise any key areas of concern to the POB, while the POB will review KPIs at the goal level on a quarterly basis. A rigorous assessment of the programme's progress against the strategy's milestones will be conducted near the end of 2023.

Risk management

The management of operational risk drives many aspects of the GPEI's work, including the planning of preventive immunization campaigns, surveillance, outbreak response, vaccine supply, R&D and financial management. For this **Polio Eradication Strategy 2022–2026**, the GPEI takes risk management further by identifying and monitoring key higher-level risks and strategic risks (see **Table 1**), which will be periodically reported through GPEI governance.

Table 1. Key strategic risks

| Short description | Description |
|--|---|
| Risk of VDPV spread | A high risk of continued international spread and multicountry cVDPV2 outbreaks exists due to declining type 2 population immunity, weak essential immunization systems and further seeding because of Sabin OPV2 usage. Continued spread may overwhelm the GPEI's ability to respond both in terms of technical capacity and funding available to the programme. |
| Inadequate resources | Increased requirements for outbreaks, vaccine supplies and lack of progress in the endemic countries could cause programme demands to exceed available resources. This could result in the risks of not being able to sustain the level of support needed by the GPEI and running out of funds before the job is finished. |
| Insufficient access | The inability to reach all children with OPV in remaining polio reservoirs is due to insecurity, access restrictions, community indifference and mistrust resulting in pockets of unvaccinated children, increasing the risk of not being able to eradicate poliovirus. |
| Weak surveillance | The risk of the ongoing undetected transmission of polio is due to weak surveillance in high-risk areas. Surveillance can be weakened through limited access in security-compromised areas, infrequent training of surveillance, laboratory and data officers, and the diversion of polio assets towards other areas, such as COVID-19. The potential withdrawal of GPEI support could weaken countries' health capacities and systems without robust surveillance. |
| Gender not mainstreamed | Insufficiently reflecting gender in strategies, planning, budgets, operations and governance could have a detrimental effect on the programme's capacity to achieve the eradication goal. |
| Poor integration | The risk that eradication could be compromised without the provision of integrated services is largely due to inadequate resources and no clear management focus on integrated services within the GPEI. |
| Poor government commitment | Governments' insufficient political, financial or resource commitments could compromise the polio eradication response effort. |
| Loss of donor confidence or support | The loss of donor support due to poor eradication performance or to the GPEI's failure to address key donor criteria could lead to reduced resources for the programme. |
| Failure of effective GPEI response | The GPEI may fail to respond to the complex challenges of polio eradication in terms of the quality and/or timeliness of emergency operations. |
| Civil society indifference | Civil society indifference to polio eradication could lead to suboptimal results and the potential failure to eradicate WPV1 or contain VDPVs. |

The risks outlined in Table 1 are cross-cutting, allow for a broader, balanced view of the strategy's risk environment and are closely aligned with the four pillars of GPEI risk management: operational risks (internal), government engagement and commitment (external), donor or stakeholder confidence (financial), and community or civil society engagement (communities served).

In addition to identifying and actively managing these strategic risks, the GPEI will continue to implement risk management activities (through the activities of partner agencies, management groups and technical communities of practice) appropriate to the respective functional and operational needs. These operational risks – as evidenced in other parts of the strategy – continue to be dealt with at an operational level. Such operational and administrative risk management activities are supplemented by corporate risk management processes established within the respective partner organizations.

Risk management framework. In addition to identifying the strategic risks, the framework calls for a transparent risk management process within GPEI governance to monitor the key risks to the achievement of the strategy. This process is built on best practices and incorporates standard risk management tools and processes that include:

- a *strategic risk register* identifying the risk, risk owner(s), the associated impact and likelihood, as well as mitigation measures and current risk status (see **Annex E**, Table E1); and
- a six-monthly *periodic assessment process* envisaged to take stock of the risks through a self-assessment process, to provide management with changes to the risk environment, vet new risks, compare the current risk environment with the previous period and enable a timely managerial response to address changes in the risk environment. Periodic risk reports are relayed through the SC to the Financial Accountability Committee and POB, as required.

GPEI risk management will be implemented within the broader M&E framework and will be coordinated in the Executive Management Unit with direct reporting lines to the SC (see **GPEI structure, Fig. 11**).

7. FINANCE AND COSTING

The timeline to interrupt transmission is the biggest driver of cost and determines the trajectory of spend throughout the duration of the **Polio Eradication Strategy 2022–2026**. Therefore, the programme developed cost estimates based on four unique modelling scenarios with varying eradication timelines (see **Table 2**). The scenario best aligned to the strategy, which assumes interruption of WPV within two years of launching the strategy (by the end of 2023) and certification within five years, has an initial cost estimate of US\$ 5.1 billion over five years.²⁹

Table 2. Estimated cost of various eradication timelines

| Eradication timeline | Projected five-year cost (US\$) |
|---|---------------------------------|
| Interrupt WPV transmission in 1 year and certify in 4 years | 4.5 billion |
| Interrupt WPV transmission in 2 years and certify in 5 years | 5.1 billion |
| Interrupt WPV transmission in 3 years and certify in 6 years | 5.5 billion |
| Interrupt WPV transmission in 5 years and certify in 8 years | 6.2 billion |

Key areas of spend in the indicative US\$ 5.1 billion estimate include SIAs (primarily in endemic countries), robust surveillance, large-scale response to cVDPV outbreaks and an appropriately sized OPV stockpile, integrated campaigns and gender (which, for the first time, is a discrete planning assumption in the cost estimate),³⁰ and essential health and community services, campaign quality enhancements and the staffing of country, regional and headquarter offices to support eradication (see **Fig. 15**).

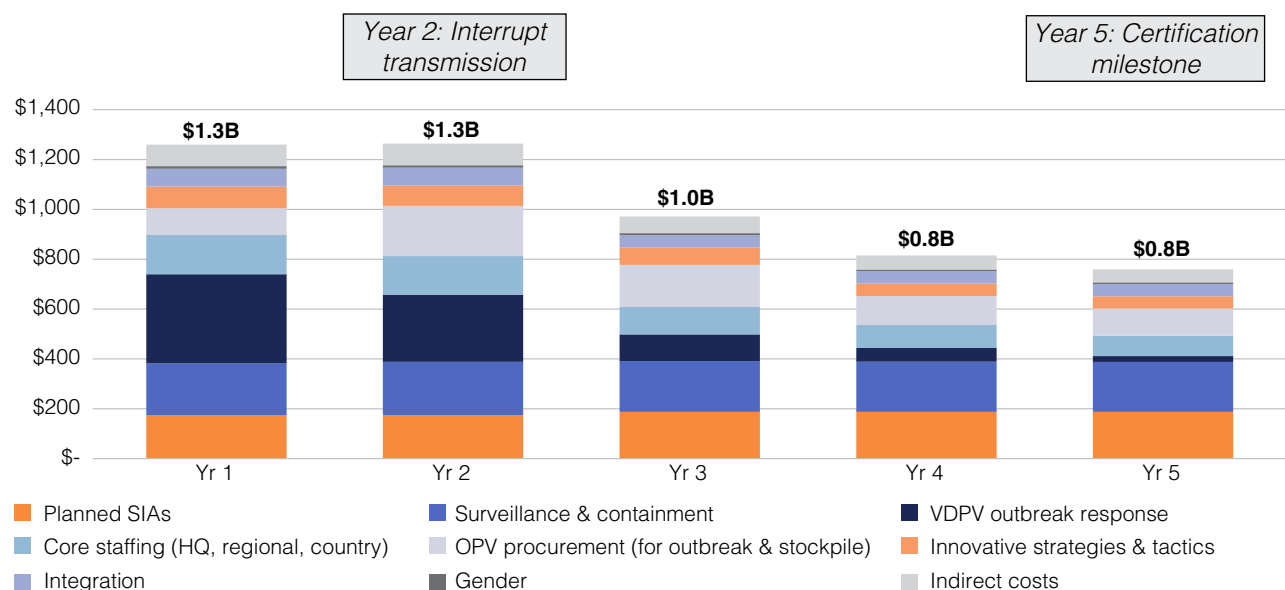
The US\$ 5.1 billion scenario assumes that total costs remain high over the initial two years and then decrease once the programme achieves interruption and begins certification efforts in the third year. Once the certification milestone has been achieved, costs will plateau as the programme begins implementing the **Post-Certification Strategy** (see **the Preparing for the post-certification world** section). The early transition of polio-supported functions onto other programmes with alternative sources of support would reduce the GPEI's resource requirements, but the projections of these shifts have not been factored into these scenarios.

As details of this new strategy are further elaborated, and as potential lingering impacts of the pandemic on implementation planning become clear, the programme will leverage this initial estimate as one of the inputs for the GPEI to build a detailed multiyear operational budget. The GPEI operating budget for 2022–2026 will be approved by the GPEI leadership towards the end of 2021. Variables such as the size and duration of outbreaks, the potential for the transition of current GPEI-supported functions to other programmes and other factors (e.g. integration strategies and stockpile requirements) could push the financial requirements up or down. This strategy's resource mobilization will be guided by an investment case for the GPEI that will be put forward in 2021 and will rely on both existing and new sources of funding. The budget will be reassessed regularly to ensure lasting alignment with programmatic priorities and to fund the most impactful and cost-effective interventions.

²⁹ The POB-approved budget and budget details will be available on the GPEI website (www.polioeradication.org/financing).

³⁰ The estimated cost to implement this strategy includes a 1% allocation for gender-related activities, which is included in Fig. 14 but is not visible given the relatively small amount.

Fig. 15. Estimated yearly cost of the new polio strategy (US\$ billions)



HQ = headquarters; OPV = oral polio vaccine; SIA = supplementary immunization activity; VDPV = vaccine-derived poliovirus.
 Source: WHO.

Additional costs required to achieve eradication

The GPEI budget will not be sufficient on its own to fully implement this strategy and achieve eradication. In addition to the programme elements captured within an indicative resource requirement of US\$ 5.1 billion, for example, the programme will require funds to support IPV through Gavi and essential immunization, additional pre-cessation stockpiles, research and any major integration initiatives beyond those initially scoped within this budget scenario. (For example, many of these integration initiatives will require collaboration with other health programmes to deliver a combined package of services, so the budget will be refined as discussions advance.) As in previous years, the GPEI is committed to working with Gavi to strengthen global immunization and advocate for funding in this space.

Tracking resources to target gender equality

Mainstreaming gender “visibility” throughout the budget cycle ensures accountability for commitments to gender equality and eradication. To provide greater visibility, the GPEI will develop a new gender marker tool as a scoring system (see **Table 3**) to ensure resources for gender activities and to track allocations for activities that target gender equality, both direct and indirect funding allocations (see **Fig. 15**). Activities with a score of 2 will go against the direct or dedicated gender budget line. The gender markers will be complemented by additional gender metrics to measure investment and outcomes (see **Annex I**).

Table 3. Gender marker three-point scoring system

| Activity | Definition |
|---------------------------------|--|
| Not objective (score 0) | Activity does not target gender or gender equality (e.g. the procurement of vaccine) |
| Significant objective (score 1) | Gender and gender equality are important but not the principal objective of the activity (e.g. AFP surveillance) |
| Principal objective (score 2) | Gender is the main objective and contributes to gender equality (e.g. gender training, technical assistance or safeguarding) |

PREPARING FOR THE POST-CERTIFICATION WORLD

The *Post-Certification Strategy* (PCS) describes the technical functions and standards needed to maintain a polio-free world, functions that include containment, immunization with appropriate polio vaccines, poliovirus surveillance and outbreak response (see **Fig. 16**).³¹

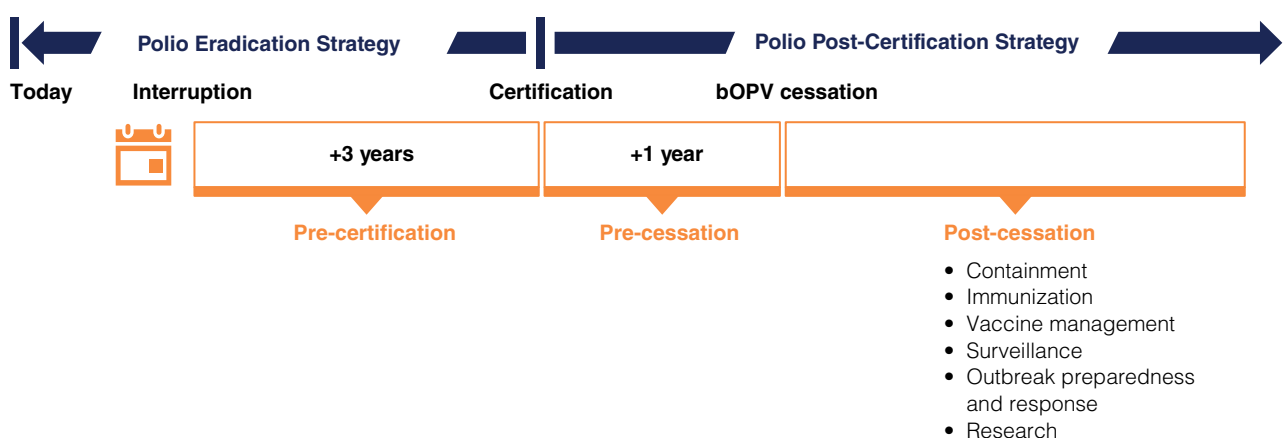
The PCS offers three main goals to guide activities in the post-certification period:

1. Contain polioviruses. The focus of Goal One is to achieve and sustain the restricted safe handling of polioviruses in laboratories, vaccine manufactures and other facilities (such as research institutions) to prevent their reintroduction in a polio-free world. The key focus areas will be to reduce the number of facilities storing and handling poliovirus globally, and to implement and monitor appropriate safeguards in those facilities that retain poliovirus.

2. Protect populations. The focus of Goal Two is to protect populations from VDPVs and vaccine-associated paralytic poliomyelitis (VAPP) by preparing and coordinating the global withdrawal of bOPV, and from any poliovirus re-emergence by providing access to safe, effective vaccines.

3. Detect and respond to a polio event. The focus of Goal Three is to promptly detect any poliovirus in a human or in the environment through a sensitive surveillance system and to maintain adequate capacity and resources to effectively contain or respond to a polio event.

Fig. 16. Post-Certification Strategy high-level timeline



bOPV = bivalent oral polio vaccine.
Source: *Polio Post-Certification Strategy*.

To anticipate the transfer of skills, knowledge and resources of a programme that is over 30 years old, it is important to start implementation planning now as the GPEI partnership will dissolve at certification. A significant portion of polio staff time is spent supporting activities related to broader immunization and health care goals.³² Current polio resources, funding and systems will need to be transitioned either to groups that will support maintaining a polio-free world, or groups that have relied on polio resources to accomplish their health goals. Many such activities have been included in relevant sections of this strategy, including, for example, stronger collaboration with the immunization community and health emergency programmes to prevent and respond to outbreaks.

The PCS will be revised by the GPEI and ideally co-developed with the broader immunization community, as well as with other “future owners” of sustaining a polio-free world. For this 2022–2026 strategy, the two areas with additional details are containment and OPV cessation.

³¹ Global Polio Eradication Initiative (GPEI). *Polio Post-Certification Strategy*. Geneva: World Health Organization; 2018 (<http://polioeradication.org/wp-content/uploads/2018/04/polio-post-certification-strategy-20180424-2.pdf>, accessed 8 June 2021).

³² For examples of activities and time spent towards broader immunization and health care goals, see Van den Ent MM, Swift RD, Anaokar S, Hegg LA, Eggers R, Cochi SL. Contribution of Global Polio Eradication Initiative – Funded Personnel to the Strengthening of Routine Immunization Programs in the 10 Focus Countries of the Polio Eradication and Endgame Strategic Plan. *J Infect Dis*. 2017;216(S1):S244–9 (<https://doi.org/10.1093/infdis/jiw567>, accessed 8 June 2021).

CONTAINING POLIOVIRUS

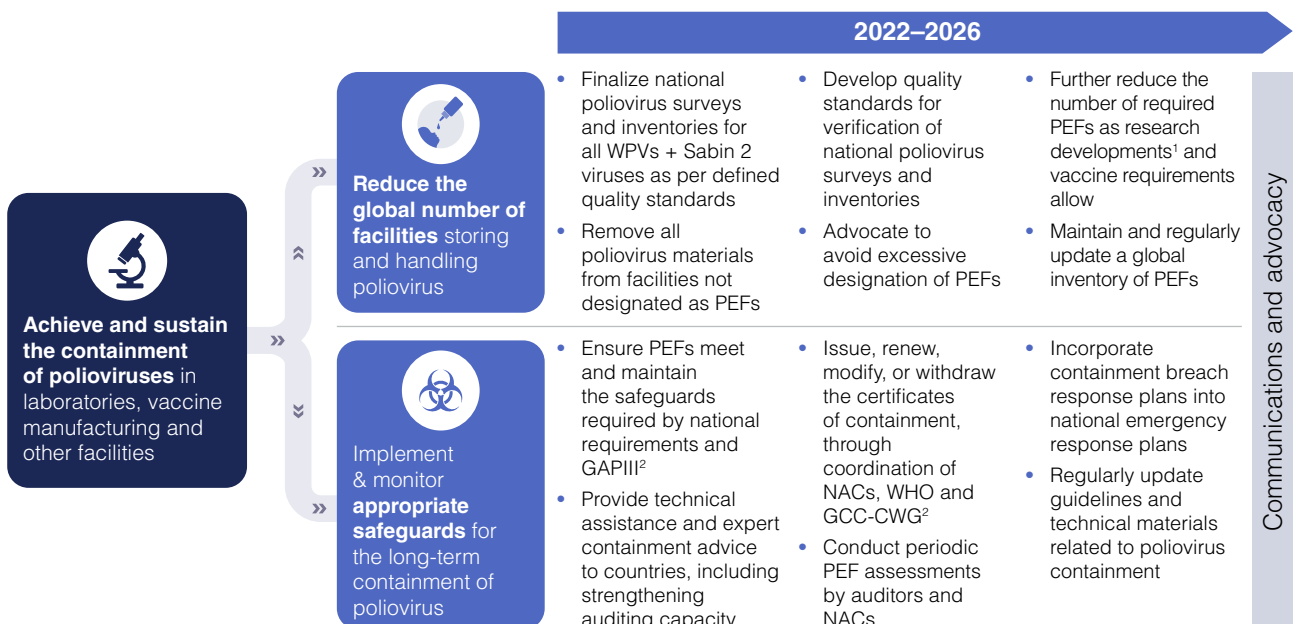
In 2015, WHO Member States committed to containing all type 2 polioviruses, including Sabin and Sabin-like strains, in specially designated poliovirus-essential facilities (PEFs). Similar commitments will be made for types 1 and 3 in the near future, beginning with inventories of materials containing WPV and VDPV of these serotypes. These activities were included in the resolution that Member States adopted at the Seventy-first World Health Assembly in 2018, which urges the intensification of efforts to accelerate progress towards poliovirus containment globally.³³ As of May 2021, 24 countries have designated 74 PEFs for the retention of poliovirus type 2 materials. These facilities are mainly located in high-income countries and include polio vaccine manufacturers, research laboratories and other facilities storing or processing biological materials. The process of PEFs obtaining Certificates of Participation is nearing completion, to be followed in the near future by obtaining Interim Certificates of Containment and, ultimately, Certificates of Containment for all three types of poliovirus. These activities will continue during this strategy's time frame to ensure that all poliovirus type 2 materials are destroyed or safely and securely contained, and that further progress is made for inventorying types 1 and 3 materials and reducing the number of PEFs.

Implementing and monitoring long-term poliovirus containment in facilities with appropriate safeguards will be key to maintaining a polio-free world. Bridging activities are needed now for containment to be in full force in the PCS (see **Fig. 17**). Facilities retaining poliovirus materials and designated as PEFs will need to meet and maintain the safeguards required by GAPIII and allow periodic assessment by auditors and national authorities for containment (NACs).³⁴ The NACs will renew, modify or withdraw the Certificates of Containment, in coordination with WHO and the Containment Working Group of the Global Commission for the Certification of the Eradication of Poliomyelitis (GCC-CWG) or other oversight bodies. The NACs are relatively new bodies and, as such, require political support within their Member States. Advocacy remains critical to the process, and all bodies, from the national to the global level, need a common understanding of the global containment certification process and requirements.

In preparing for a possible breach, WHO has developed guidance for managing exposed persons in PEF-hosting countries.³⁵ The containment breach scenario has also been incorporated in polio outbreak simulation exercises. These two-day tabletop exercises have proven informative in identifying differences in national authorities and mandates for isolation and quarantine and IHR reporting.

See **Annex K** for updates on progress towards containment goals.

Fig. 17. Major activities for containment, 2022–2026



¹ Possible developments include the replacement of virus cultures with other assays for the diagnosis of poliovirus infection or the production of vaccines using genetically modified poliovirus strains or virus-like particles.

² GCC-CWG will continue to implement the CCS until global WPV certification, at which time this oversight will be taken on by the appropriate body.

CCS = Containment Certification Scheme; GAPIII = Global Action Plan to minimize post-eradication poliovirus facility-associated risk, third edition; GCC-CWG = Containment Working Group of the Global Commission for the Certification of the Eradication of Poliomyelitis; NAC = national authority for containment; PEF = poliovirus-essential facility; WPV = wild poliovirus.

Source: WHO.

³³ Resolution WHA71.16. Poliomyelitis – containment of polioviruses. In: Seventy-first World Health Assembly, Geneva, 26 May 2018. Geneva: World Health Organization; 2018 (http://apps.who.int/gb/ebwha/pdf_files/WHA71/A71_R16-en.pdf, accessed 16 June 2021).

³⁴ GAPIII: WHO Global Action Plan to minimize poliovirus facility-associated risk after type-specific eradication of wild polioviruses and sequential cessation of oral polio vaccine use, third edition. Geneva: World Health Organization; 2015 (http://polioeradication.org/wp-content/uploads/2016/12/GAPIII_2014.pdf, accessed 8 June 2021).

³⁵ Public Health Management of Facility Related Exposure to Live Polioviruses. Geneva: World Health Organization; October 2019 (<https://polioeradication.org/wp-content/uploads/2016/07/Public-Health-Management-of-a-facility-PV-exposure.pdf>, accessed 11 June 2021).

OPV CESSATION

OPV cessation is critical to stop the occurrence of VAPP and to remove the primary risk of emergence of all types of VDPVs. Planning for OPV withdrawal will start at least two years in advance of cessation, building on the lessons learned from the switch from tOPV to bOPV. The OPV cessation policy will address three main issues: strategies for pre-cessation SIAs; the availability of new, more genetically stable vaccine options; and the time-interval between certification of eradication and OPV cessation. SIAs with types 1 and 3 containing OPV (Sabin or novel) should be implemented over a period of time in the years prior to cessation and not just during the immediate pre-cessation period, to maintain persistently high population-level immunity. Uncertainties remain regarding the optimal number of such SIAs.

As of the second quarter of 2021, nOPV1 and nOPV3 are projected to be available through the WHO prequalification (PQ) process by the second quarter of 2025 and the first quarter of 2026, respectively, assuming successful clinical development and manufacturing efforts in the coming years. A decision on clinical development of multivalent novel OPV is expected to be taken by the second quarter of 2022. For each of these novel OPV products, the option of EUL could be explored, which could result in availability for outbreak response use at least one year before the projected PQ timelines.

Several factors may contribute to the optimal estimates for the period between certification of eradication and OPV cessation; these include assessment of the coverage and quality of SIAs in the years before cessation, IPV coverage in essential immunization, assessment of stockpile size, and the feasibility of early use of novel OPV formulations in pre-cessation SIAs. Also, better estimates of circulating vaccine-derived poliovirus type 1 and 3 risks and an updated VAPP burden by serotype would strengthen policy formulation around cessation. The availability of tools for risk mitigation, such as polio antivirals, could further enhance the chances of minimizing community transmission risks from long-term shedders of poliovirus in the post-cessation era.



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Annexes

ANNEX A. STAKEHOLDER CONSULTATION LIST

The GPEI solicited input from a broad set of stakeholders to shape the future direction of the programme in the final, collective effort to achieve polio eradication. This external engagement was the most extensive to date of any GPEI strategy and included those stakeholders listed below.³⁶ Common themes among the feedback and questions raised over the strategy's development can be reviewed in a Stakeholder Consultation Report.³⁷

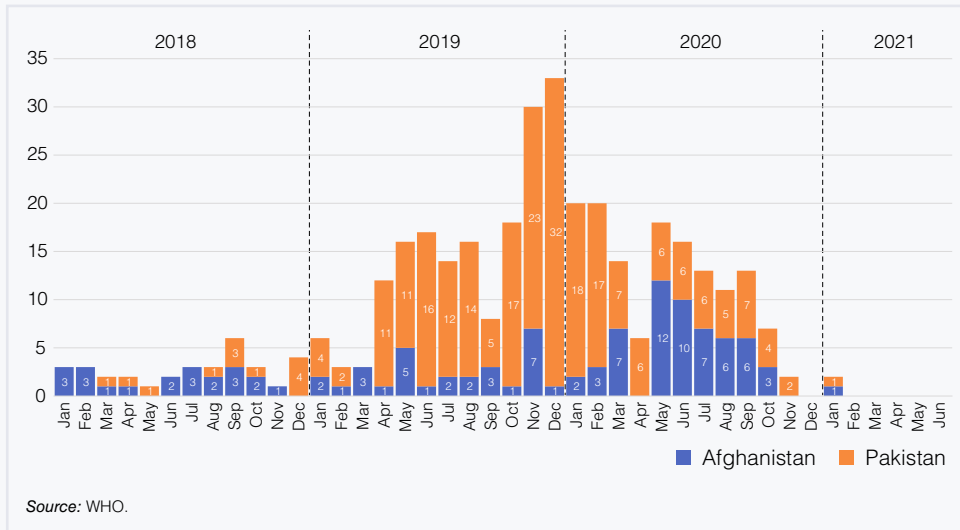
- Afghanistan Red Crescent Society
- Bill & Melinda Gates Foundation Polio and Vaccine Delivery Teams
- Camber Collective
- Center for Integrated Health Programs (CIHP)
- Centre for Health Sciences Training, Research and Development (CHESTRAD), Global
- Christian Medical College, Vellore
- Civil Society Group
- Civil Society Human and Institutional Development Programme
- Common Thread
- Communication Initiative
- CORE Group
- Emergency Committee under the International Health Regulations (IHR) regarding the International Spread of Poliovirus
- Gavi, the Vaccine Alliance
- Global Commission for the Certification of the Eradication of Poliomyelitis (GCC)
- Global Financing Facility
- Global Vaccine Action Plan (GVAP) Working Group, now the Immunization Agenda 2030 (IA2030)
- Global Virome Project
- Government of Afghanistan
- Government of Australia
- Government of Canada
- Government of Egypt
- Government of the European Union
- Government of Germany
- Government of the Islamic Republic of Iran
- Government of Japan
- Government of Norway
- Government of Pakistan
- Government of Sudan
- Government of the United Arab Emirates
- Government of the United Kingdom
- Government of the United States of America
- GPEI Management Groups and Task Teams
- GPEI Partners (immunization and emergency teams at the global and regional levels)
- Imperial College London
- Independent Monitoring Board (IMB)
- Institute for Disease Modeling (IDM)
- International Centre for Diarrhoeal Disease Research (ICDDR)
- John Snow, Inc.
- Johns Hopkins Bloomberg School of Public Health
- Kid Risk, Inc.
- Pakistan Polio Eradication Initiative
- Polio Partners Group (PPG)
- RESULTS UK
- Rotary
- Strategic Advisory Group of Experts (SAGE) on Immunization and its Polio Working Group (SAGE-WG)
- Technical Advisory Groups (TAGs) for endemic countries and regions
- The Women's Storytelling Salon
- Transition Independent Monitoring Board (TIMB)
- UNICEF Health Section, NY headquarters
- UNICEF Immunization Unit
- UNICEF Supply Division
- United Nations Foundation (UNF)
- University of Michigan
- University of North Carolina at Chapel Hill, Gillings School of Global Public Health
- University of Oxford
- US Centers for Disease Control and Prevention (CDC) Polio and Immunization Teams
- Vaccine manufacturers
- Vaccine Network for Disease Control
- VITAL Pakistan
- World Health Assembly Member States
- WHO and UNICEF regional office focal points for polio and the Expanded Programme on Immunization (EPI)
- WHO Country Offices
- WHO Director-General's Envoy Multilateral Affairs
- WHO Division for Science
- WHO Division for Communicable and Non-Communicable Diseases
- WHO Global Health Workforce Network Gender Equity Hub
- WHO Health Emergencies Programme (WHE)
- WHO Health System Strengthening
- WHO Immunization, Vaccines and Biologicals
- WHO Polio Transition Team
- WHO Resource Mobilization

³⁶ A full list by organization and focal point is available upon request.

³⁷ To view or download the Strategy Consultation Report, visit the GPEI website (<https://polioeradication.org/wp-content/uploads/2021/07/Stakeholder-Consultation-Report-20210708.pdf>).

ANNEX B. CURRENT EPIDEMIOLOGICAL STATE

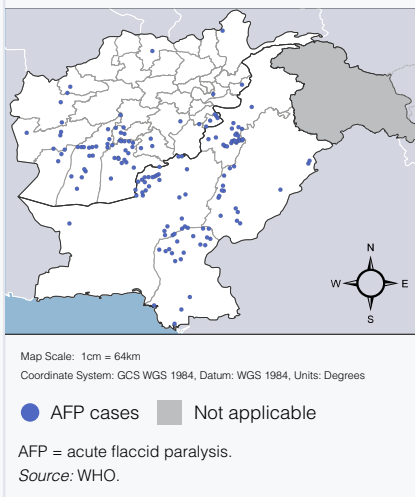
Fig. B1. Monthly WPV1 cases, Afghanistan and Pakistan, January 2018–June 2021



WPV1 highlights

- The case counts were significantly higher in 2019 and 2020 than in previous years.
- In 2020, 140 WPV1 cases were reported (56 from Afghanistan and 84 from Pakistan), compared to 176 cases in 2019 (29 from Afghanistan and 147 from Pakistan) (see **Fig. B2**).

Fig. B2. WPV1 cases in Afghanistan and Pakistan, January 2020–June 2021

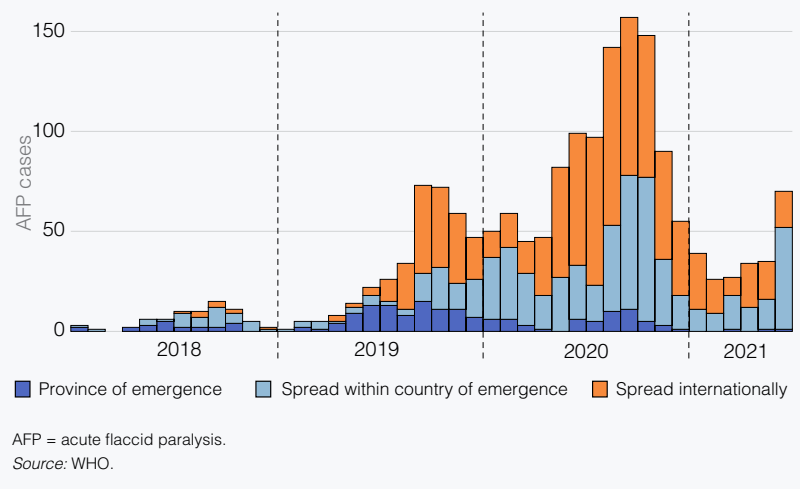


cVDPV2 highlights

Between 2019 and 2020, cVDPV2 cases tripled (see **Fig. B3**). In 2020, cVDPV2 cases totalled 1056 globally (with 308 from Afghanistan, 135 from Pakistan, 99 from Chad and 81 from the Democratic Republic of the Congo); whereas cases in 2019 totalled 366 (with only 22 from Pakistan and none in Afghanistan). The virus continued to spread across the African Region, with outbreaks spanning from the Atlantic to the Indian Ocean; virus from the Philippines spread domestically and regionally to Malaysia; and virus in Afghanistan and Pakistan spread to the Islamic Republic of Iran and Tajikistan (see **Fig. B4**). These regions and countries have continued to see the expansion of existing cVDPV2 outbreaks.

* The GPEI provides weekly updates on the global epidemiology of circulating vaccine-derived polioviruses (<https://polioeradication.org/polio-today/polio-now/this-week/circulating-vaccine-derived-poliovirus/>).

Fig. B3. Monthly cVDPV2 cases, by area of case, January 2018–June 2021



Source: All data is from WHO POLIS and is up to date as of August 2021.

Since 2018, the GPEI has seen an increase in both WPV1 and cVDPV2 cases globally. While WPV1 cases continue to remain localized to the final two endemic countries, Afghanistan and Pakistan (see **Fig. B1**), outbreaks of cVDPV2 have been detected in four regions. The inability of campaign operations to engage and reach remaining communities has contributed to this trend, as have external disruptions such as political shifts and the COVID-19 pandemic.

Fig. B4. Global cVDPV environmental surveillance isolates, January 2020–June 2021

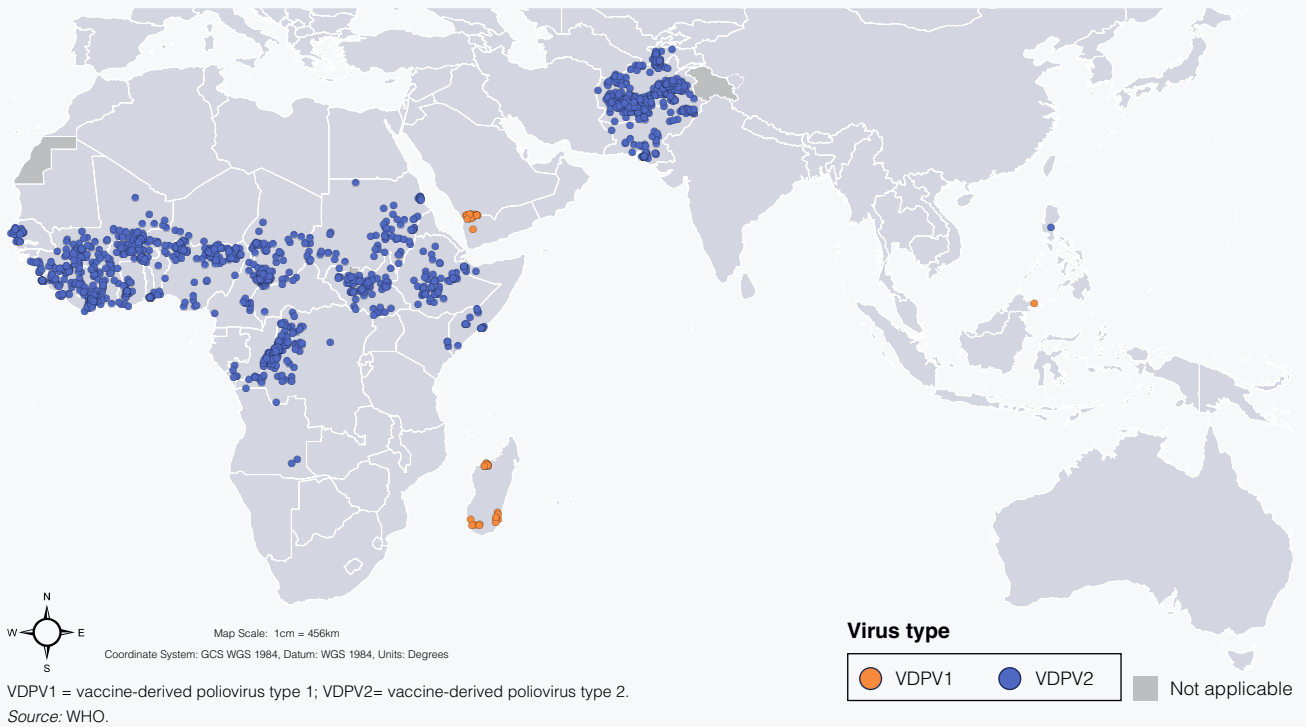
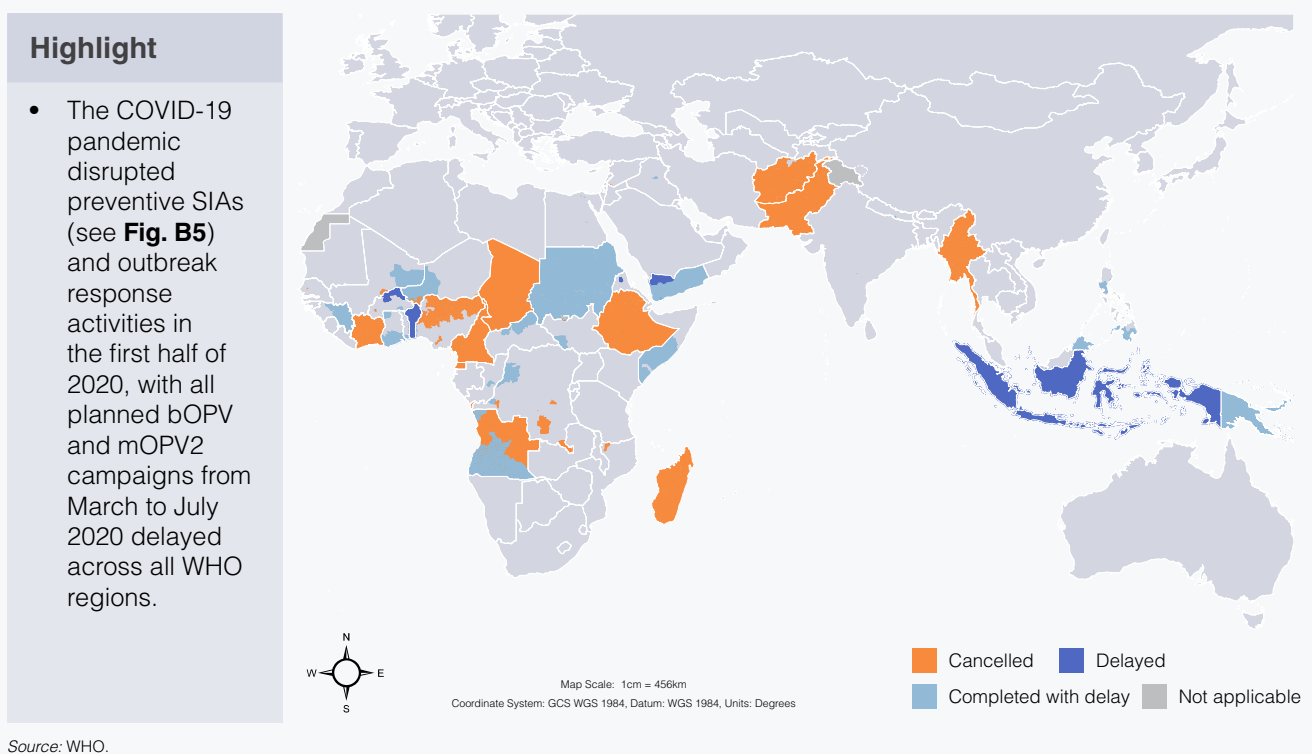
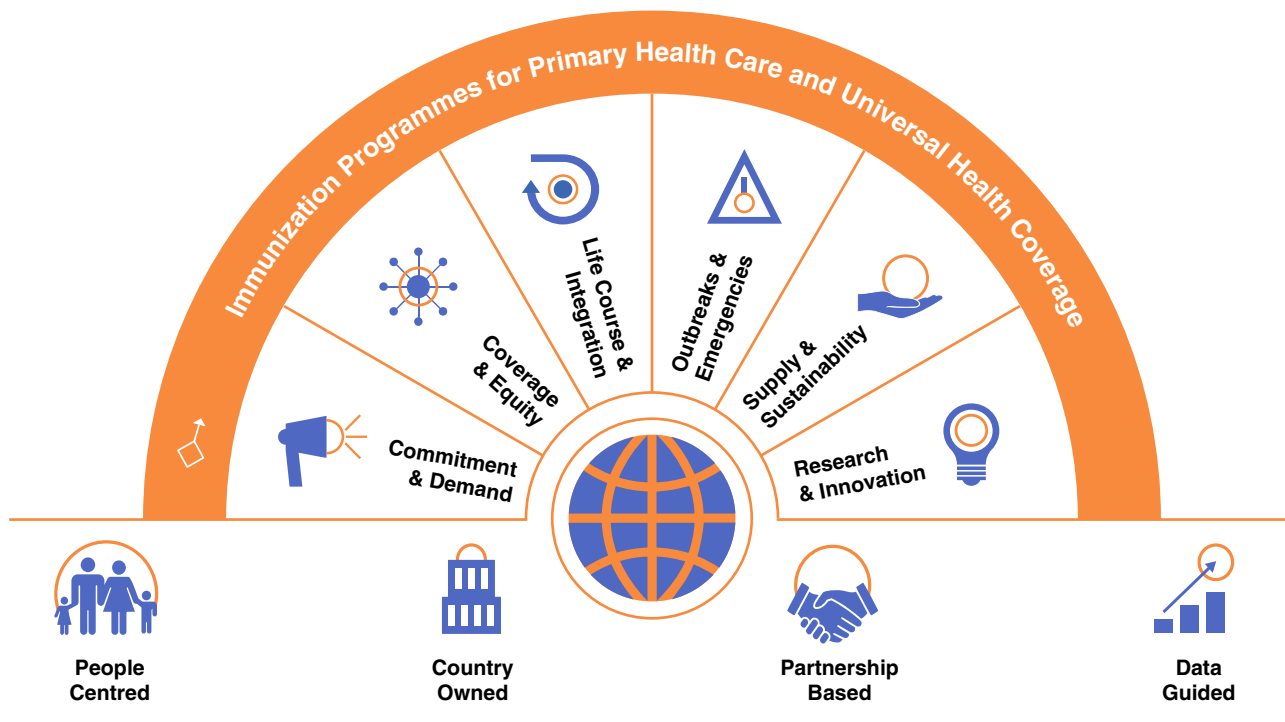


Fig. B5. Completed, delayed and cancelled polio supplementary immunization activities, 2020



ANNEX C. IMMUNIZATION AGENDA 2030

Fig. C1. GPEI contributions to Immunization Agenda 2030 (IA2030) strategic priorities



SP1 Primary Healthcare and Universal Health Coverage

Support the delivery of a comprehensive package including primary healthcare services in targeted geographies

SP2 Commitment & Demand

Generating acceptance of polio vaccines through context-specific community engagement

SP3 Coverage & Equity

Reaching zero dose communities with targeted, gender-sensitive integrated delivery strategies

SP4 Life-course & Integration

Reaching and sustaining eradication through expanded integration and through unified partnerships

SP5 Outbreaks and Emergencies

Using emergency capacities to stop cVDPV transmission and preventing future outbreaks

SP6 Supply & Sustainability

Securing adequate supply of polio vaccines and working towards sustainable transition out of GPEI support

SP7 Research & Innovation

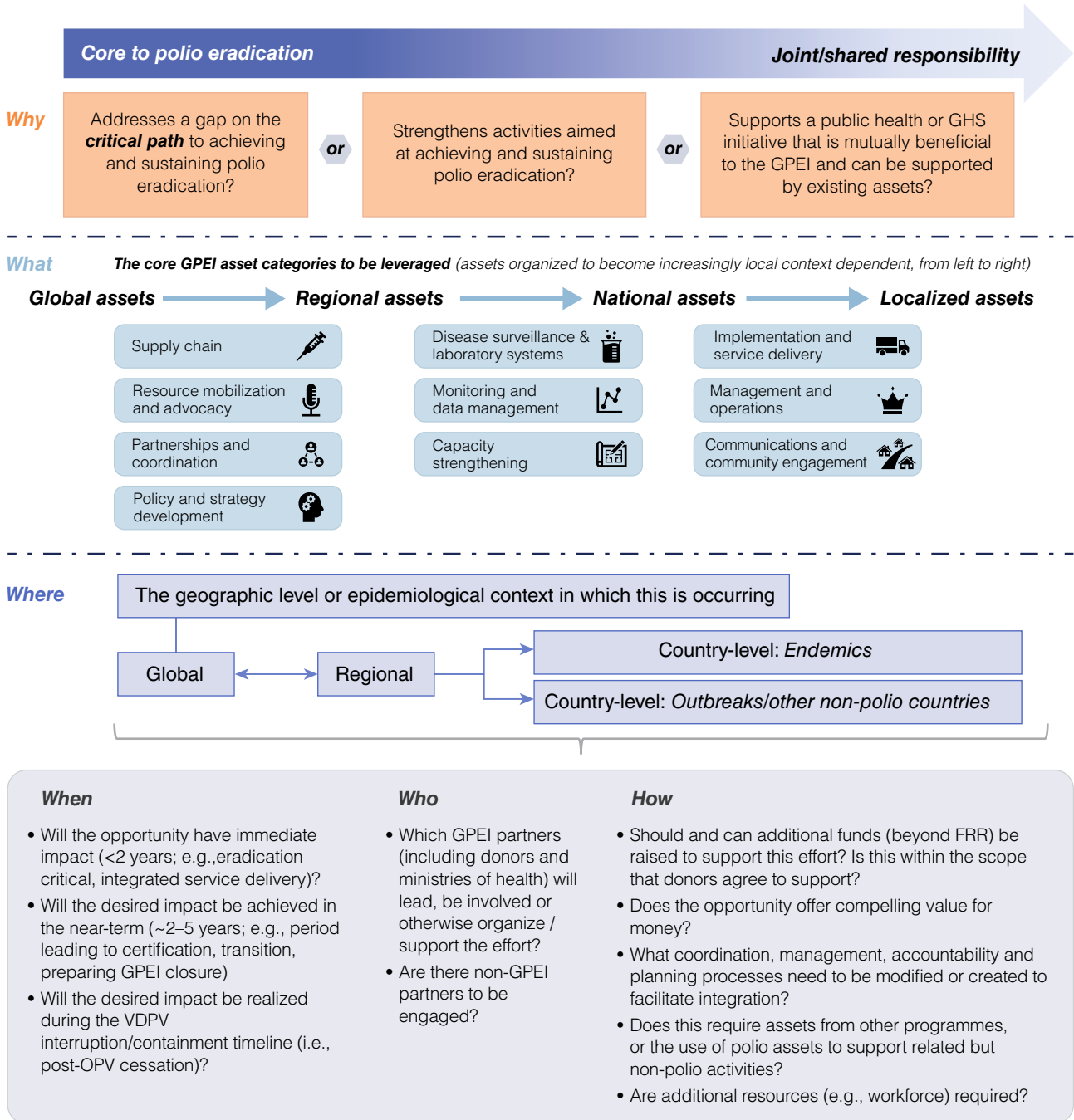
Fostering polio research and programmatic innovations, including the use of nOPV and digital technologies

cVDPV = circulating vaccine-derived poliovirus; nOPV = novel oral polio vaccine; SP = strategic priority.

Source: WHO.

ANNEX D. INTEGRATION

Fig. D1. Integration decision-making framework



FRR = functional resource requirements; GHS = global health security; OPV = oral polio vaccine; VDPV = vaccine-derived poliovirus. Source: WHO.

Table D1. GPEI integration role in endemic countries

| Where | | Geography: <i>endemics</i> | |
|----------------------------|---|---|--|
| Why | Addresses a gap on the critical path to achieving and sustaining polio eradication | Strengthens activities aimed at achieving and sustaining polio eradication | Supports a public health or global health security initiative that is mutually beneficial to the GPEI and can be supported by existing assets |
| What activities | <p>Enhancing the quality, timeliness and reach of both essential immunization activities and SIAs for polio and other vaccine-preventable efforts in the highest risk areas by:</p> <ul style="list-style-type: none"> increasing the access to and utilization of essential immunization services in the southern region of Afghanistan and the highest-risk districts of Pakistan integrating SIA planning that increases the opportunity to co-deliver polio and other vaccines or other health interventions, such as the distribution of vitamin A, deworming tablets and the dissemination of maternal and child health messaging | <p>Supporting the delivery of a broader comprehensive package, including PHC services in targeted geographies by:</p> <ul style="list-style-type: none"> ensuring the strategic objectives of the polio programme are reflected in wider investments in HSS and EPIs ensuring polio contributes to global and country immunization goals, including reducing zero-dose children and IA2030 core principles of delivering people-centred, country-owned, data-guided and partnership-based interventions advocating for the provision of other basic services to vulnerable communities | <p>Supporting the broader global and national public health initiatives as a pathway towards a successful programme transition by:</p> <ul style="list-style-type: none"> supporting efforts towards containing COVID-19 through active engagement with all national and subnational authorities coordinating response efforts continuing to conduct COVID-19 surveillance, including testing and tracing, data management, risk communication and vaccination providing other emergency response capacity during periods of acute need |
| Indicative partners | <ul style="list-style-type: none"> National and provincial EOCs Pakistan Polio Eradication Initiative-Expanded Programme on Immunization Synergy Task Team Endemics hub EPIs | <ul style="list-style-type: none"> Adjacent humanitarian and health programmes Sehatmandi and National Health Support Project Endemics hub | <ul style="list-style-type: none"> National and provincial governments Endemics hub |

COVID-19 = coronavirus disease; EOC = emergency operations centre; EPI = Expanded Programme on Immunization; HSS = health system strengthening; IA2030 = Immunization Agenda 2030; PHC = primary health care; SIA = supplementary immunization activity.

Table D2. GPEI integration role in outbreak countries

| Where | Geography: <i>outbreaks</i> | |
|----------------------------|---|--|
| Why | Strengthens activities aimed at achieving and sustaining polio eradication | Supports a public health or global health security initiative that is mutually beneficial to the GPEI and can be supported by existing assets |
| What activities | <p>Coordinating outbreak response activities with EPI and immunization partners to boost essential immunization performance in outbreak and adjacent geographies between OPV rounds by:</p> <ul style="list-style-type: none"> • using the outbreak event as an opportunity to flag systemic EPI weaknesses and mobilize support from broader immunization partners (i.e. Gavi) to boost essential immunization performance and outreach vaccination, including IPV • using its incident management structure to coordinate with governments, PHC-EPI and partners to coordinate and improve outreach, microplanning and communication to promote essential immunization and PHC • in collaboration with Gavi and other partners, aiming to leave the system on a path to recovery at the closure of an outbreak, leveraging the outbreak event to re-energize national, provincial and local health authority planning and action | <p>Supporting the broader global and national public health initiatives as a pathway towards a successful programme transition by:</p> <ul style="list-style-type: none"> • supporting efforts towards containing COVID-19 through active engagement with all national and subnational authorities coordinating response efforts • continuing to conduct COVID-19 surveillance, including testing and tracing, data management, risk communication and vaccination • providing other emergency response capacity during periods of acute need |
| Indicative partners | <ul style="list-style-type: none"> • Gavi (joint appraisals, targeted country assistance and regional working groups) • Rapid Response Team • EPIs | <ul style="list-style-type: none"> • POB • Gavi |

COVID-19 = coronavirus disease; EPI = Expanded Programme on Immunization; IPV = inactivated polio vaccine; OPV = oral polio vaccine; PHC-EPI = primary health care-Expanded Programme on Immunization; POB = Polio Oversight Board.

ANNEX E. RISKS

High-level strategic risks

Table E1. Risk register (as of the second quarter of 2021)








| Risk | Description | Likelihood | Impact | Risk level |
|---|---|------------|--------|--------------------|
| Risk of VDPV spread | A high risk of continued international spread and multicountry cVDPV2 outbreaks exists due to declining type 2 population immunity, weak essential immunization systems and further seeding because of Sabin OPV2 usage. Continued spread may overwhelm the GPEI's ability to respond both in terms of technical capacity and funding available to the programme. | 4 | 4 | Severe |
| Inadequate resources | Increased requirements for outbreaks, vaccine supplies and lack of progress in the endemic countries could cause programme demands to exceed available resources. This could result in the risks of not being able to sustain the level of support needed by the GPEI and running out of funds before the job is finished. | 3 | 4 | Significant |
| Weak surveillance | The risk of the ongoing undetected transmission of polio is due to weak surveillance in high-risk areas. Surveillance can be weakened through limited access in security compromised areas, infrequent training of surveillance, laboratory and data officers, and the diversion of polio assets towards other areas, such as COVID-19. The potential withdrawal of GPEI support could weaken countries' health capacities and systems without robust surveillance. | 3 | 4 | Significant |
| Gender not mainstreamed | Insufficiently reflecting gender in strategies, planning, budgets, operations and governance could have a detrimental effect on the programme's capacity to achieve the eradication goal. | 4 | 3 | Significant |
| Loss of donor confidence and support | The loss of donor support due to poor eradication performance or to the GPEI's failure to address key donor criteria could lead to reduced resources for the programme. | 2.5 | 4 | Significant |
| Insufficient access | The inability to reach all children with OPV in remaining polio reservoirs is due to insecurity, access restrictions, community indifference and mistrust resulting in pockets of unvaccinated children, increasing the risk of not being able to eradicate poliovirus. | 3 | 3 | Significant |
| Poor integration | The risk that eradication could be compromised without the provision of integrated services is largely due to inadequate resources and no clear management focus on integrated services within the GPEI. | 3 | 3 | Significant |
| Civil society indifference | Civil society indifference to polio eradication could lead to suboptimal results and the potential failure to eradicate WPV1 or contain VDPVs. | 2.9 | 2.9 | Moderate |
| Poor government commitment | Governments' insufficient political, financial or resource commitments could compromise the polio eradication response effort. | 2 | 4 | Moderate |
| Failure of effective GPEI response | The GPEI may fail to respond to the complex challenges of polio eradication in terms of the quality and/or timeliness of emergency operations. | 2 | 4 | Moderate |

COVID-19 = coronavirus disease; cVDPV2 = circulating vaccine-derived poliovirus type 2; OPV2 = oral polio vaccine type 2; VDPV = vaccine-derived poliovirus; WPV1 = wild poliovirus type 1.

Note: Mitigation measures will be included in future updates to the risk register.

Operational risk examples

Table E2. Key risks to the vaccine supply and risk mitigation activities (as of the second quarter of 2021)

| Risk category | Description | Response | Status |
|---|--|---|---|
| Global OPV stockpile | Limited pool of suppliers and attrition of suppliers from the market | Work with UNICEF, vaccine manufacturers, containment and the nOPV2 WG to bring new suppliers to the market |  |
| | Risk of Sabin OPV2 stock ruptures in 2021–2022 in case of slow nOPV2 rollout | Negotiate larger Sabin OPV2 supply |  |
| | Risk of OPV2 shortages in 2021–2023 if suspending or discontinuing nOPV2 use on safety or stability concerns | <ul style="list-style-type: none"> Closely monitor nOPV2 rollout, nOPV2 WG/VSTT collaboration, and revise the GS plan as needed Pre-position Sabin OPV2 bulk as a contingency preparedness measure |  |
| bOPV | <ul style="list-style-type: none"> Declining demand for bOPV, making it less attractive to suppliers with the risk of increased costs and supplier attrition Large oversupply or expiring stock due to SIA cancellations in 2020 | <ul style="list-style-type: none"> Advocate with countries to accept short shelf-life vaccine Improve demand forecasting and lead times Introduce mechanisms to share the financial risks with vaccine suppliers |  |
| | Inability to maintain a large rolling buffer stock to meet bOPV needs in case of polio outbreaks and short-term changes in SIA plans | <ul style="list-style-type: none"> Expand the OPV supplier pool Establish a physical bOPV buffer as a contingency preparedness measure |  |
| | Reduced pool of suppliers accepted by Pakistan | Advocate for licensure of new bOPVs in the country |  |
| Financing | Irregular financing, affecting the timelines of implementing the GS plan | Develop and implement a 2022–2026 vaccine supply strategy, plan and budget |  |
| COVID-19/ Access to COVID-19 Tools (ACT) Accelerator | The impact of COVID-19 and its response on polio vaccine supply | Develop long-term polio vaccine supply plans, and collaborate with suppliers, IVB and WHE on contingency planning and coordination |  |

bOPV = bivalent oral poliovirus; COVID-19 = coronavirus disease; GS = global stockpile; IVB = Immunization, Vaccines and Biologicals; nOPV2 = novel oral polio vaccine type 2; nOPV2 WG = novel oral polio vaccine type 2 Working Group; OPV = oral polio vaccine; OPV2 = oral polio vaccine type 2; SIA = supplementary immunization activity; VSTT = Vaccine Supply Task Team; WHE = WHO Health Emergencies Programme.

Table E3. Risks to the nOPV2 deployment (as of the second quarter of 2021)

| Risk category | Description | Likelihood | Potential impact |
|---|---|-------------|------------------|
| Safety | Insufficiently low seeding rate from nOPV2 | Low | High |
| | AEFI/AESI clusters | Low | High |
| Effectiveness (vaccine) | Poor effectiveness in interrupting outbreaks | Low | Medium |
| Effectiveness (delivery) | Inadequate campaign quality/ speed/ scope | Medium-high | High |
| Vaccine supply | Production issues | Medium | High |
| | Stockpile funding shortage | Medium | High |
| | Loss of vaccine (e.g. shelf life) | Low | Medium |
| Government acceptance or readiness | Reluctance to use nOPV2 by governments; | Low-medium | High |
| | Inability to achieve readiness to deploy nOPV2 | | |
| Community acceptance | <ul style="list-style-type: none"> • Rejection of nOPV2 specifically (e.g. apprehensions with “genetic modifications”, expedited vaccine without PQ, new vaccine) • Reaction to real or perceived AEFI • Collateral impact to nOPV2 confidence due to COVID-19 vaccines, etc. • Widespread misinformation and rumours on immunization broadly or nOPV2 specifically | Medium | High |
| Funding | Loss of donor confidence or funding in case of unsuccessful nOPV2 rollout | Medium | High |
| Epidemiology | Massive co-circulation of poliovirus types 1 and 2 | Medium | Medium |
| | Re-established endemicity of cVDPV2 in multiple regions | Low | High |
| Regulatory | Suspended or revoked EUL recommendation for nOPV2 | Low | High |
| | Non-PQ of nOPV2 because of safety or efficacy signals in field use and clinical trials or other data issues | Low | High |

AEFI = adverse event following immunization; AESI = adverse event of special interest; COVID-19 = coronavirus disease; cVDPV2 = circulating vaccine-derived poliovirus type 2; EUL = Emergency Use Listing; nOPV2 = novel oral polio vaccine type 2; PQ = prequalification.



ANNEX F. STRATEGY OBJECTIVES AND KEY PERFORMANCE INDICATORS

Polio Eradication Strategy 2022–2026

Table F1. Create urgency and accountability through advocacy to generate greater political will

| Outcomes | KPIs |
|---|--|
| 1.1 Heightened government ownership in the form of statements and demonstration of political commitment | 1.1.1 % of countries with new detection of poliovirus that declare a national public health emergency within one week of outbreak confirmation 1.1.2 % of previously inaccessible districts made accessible through appropriate negotiation/agreements 1.1.3 At least two meetings of the national task force on polio eradication (chaired by the head of state) convened each year to review progress and address challenges |
| 1.2 Qualified staff in place to act swiftly and in the right localities in endemic and outbreak/at-risk countries | 1.2.1 % of medical officer and vaccination staff positions that remain vacant for three or more months in polio high-risk districts 1.2.2 A review by provincial task forces (chaired by provincial chief secretaries, governors, health ministers or provincial health directors) of the number of missed children and the quality of operations after each mass vaccination campaign in the province, with corrective actions |
| 1.3 Greater domestic financial contributions towards the polio eradication programme | 1.3.1 % of outbreak countries contributing domestic resources to outbreak response aggregated by income profile |

Table F2. Generate vaccine acceptance through context-adapted community engagement

| Outcomes | KPIs |
|--|--|
| 2.1 Increased campaign awareness in all settings conducting SIAs | 2.1.1 % of all OPV SIAs showing evidence that campaign awareness was >90% of all households (based on ICM and/or LQAS) |
| 2.2 Increased community participation in SIAs in priority subnational areas (as per NEAPs) in the endemic countries | 2.2.1 % of female vaccinators per SIA in priority subnational areas in compliance with GPEI PSEA and safeguarding measures 2.2.2 % decrease of missed children in priority subnational areas in endemic countries |
| 2.3 Increased use of innovative approaches to improve community engagement (including social and behaviour change research, analytics and campaign design) | 2.3.1 Qualitative demonstration of the use of locally designed and implemented solutions informed by gender analysis to improve community engagement in polio and essential immunization campaigns |

ICM = intra-campaign monitoring; LQAS = lot quality assurance sampling; NEAP = National Emergency Action Plan; OPV = oral polio vaccine; PSEA = protection from sexual exploitation and abuse; SIA = supplementary immunization activity.

Table F3. Expedite progress towards eradicating polio and reducing zero-dose children through expanded integration efforts and unified partnerships

| Outcomes | KPIs |
|---|---|
| <i>3.1 Package of integrated services, tailored to community context, delivered with a gender lens in targeted geographies (as per NEAPs) in the endemic countries</i> | 3.1.1 % of integrated service initiatives that are designed and implemented in a gender-responsive way |
| <i>3.2 Alignment between polio and immunization resulting in HSS and EPI investments reflecting polio programme strategic objectives, and polio contributing to IA2030 and country immunization goals reducing the number of zero-dose children</i> | 3.2.1 % of polio priority subnational geographies where joint or collaborative investment is taking place by Gavi and the GPEI |
| | 3.2.2 % increase of VPD SIAs that co-deliver bOPV* *in endemic settings: co-delivery of bOPV with VPD campaigns in addition to polio SIAs; in non-endemic settings: co-delivery of bOPV with VPD campaigns instead of stand-alone OPV SIAs |
| <i>3.3 Continued support to broader global and national public health initiatives as a pathway towards a successful programme transition</i> | 3.3.1 Increasing the amount to PHC investments directed towards polio high-risk areas in endemic and outbreak/at-risk countries |
| | 3.3.2 Continue to track polio HR contributions towards COVID-19 response |

bOPV = bivalent oral polio vaccine; COVID-19 = coronavirus disease; EPI = Expanded Programme on Immunization; HR = human resources; HSS = health system strengthening; IA2030 = Immunization Agenda 2030; NEAP = National Emergency Action Plan; OPV = oral polio vaccine; PHC = primary health care; SIA = supplementary immunization activity; VPD = vaccine-preventable disease.

Table F4. Improve frontline success through changes to campaign and outbreak response operations

| Outcomes | KPIs |
|---|--|
| <i>4.1 Improved campaign quality, particularly to reduce persistently missed children in SIAs</i> | 4.1.1 % of campaigns for which microplans were developed via integrated planning workshops (inclusive of EPI, MNCAH, communication and GIS) in a gender-responsive way |
| | 4.1.2 No. of previously missed children (including those in inaccessible areas) subsequently vaccinated per quarter |
| | 4.1.3 % of all OPV SIAs showing evidence of sex-disaggregated and age-disaggregated coverage $\geq 90\%$ (based on LQAS and/or ICM) |
| | 4.1.4 % of outbreaks closed in two rounds and a mop-up |
| <i>4.2 Timely outbreak preparedness and response</i> | 4.2.1 Average no. of days between outbreak confirmation and onset of the first SIA |
| | 4.2.2 % of funds available at a district level 72 hours prior to the campaign start |
| <i>4.3 Successful and timely nOPV2 rollout</i> | 4.3.1 % of target countries that meet the requirements for nOPV2 usage |
| | 4.3.2 No. of countries successfully rolling out nOPV2 according to the defined roadmap |

bOPV = bivalent oral polio vaccine; EPI = Expanded Programme on Immunization; GIS = geographic information system; ICM = intra-campaign monitoring; LQAS = lot quality assurance sampling; MNCAH = maternal, newborn, child and adolescent health; nOPV2 = novel oral polio vaccine type 2; OPV = oral polio vaccine; SIA = supplementary immunization activity.

Table F5. Improve detection and response through sensitive surveillance and containment

| Outcomes | KPIs |
|--|---|
| 5.1 Consistent global implementation of surveillance standards, with a focus on polio-priority districts | 5.1.1 % of districts achieving NPAFP rate of >2/100 000 5.1.2 % of ES sites meeting a sensitivity threshold of at least 50% of samples positive for enterovirus over six months |
| 5.2 Increased speed of detection and precision of the surveillance system | 5.2.1 % of cases with adequate stool sample collection disaggregated by sex (target: 80% of cases) 5.2.2 % of WPV and VDPVs reported within 35 days of onset for AFP cases or ES sample collection |

AFP = acute flaccid paralysis; ES = essential immunization; NPAFP = non-polio acute flaccid paralysis; VDPV = vaccine-derived poliovirus; WPV = wild poliovirus.

Gender Equality Strategy 2019–2023

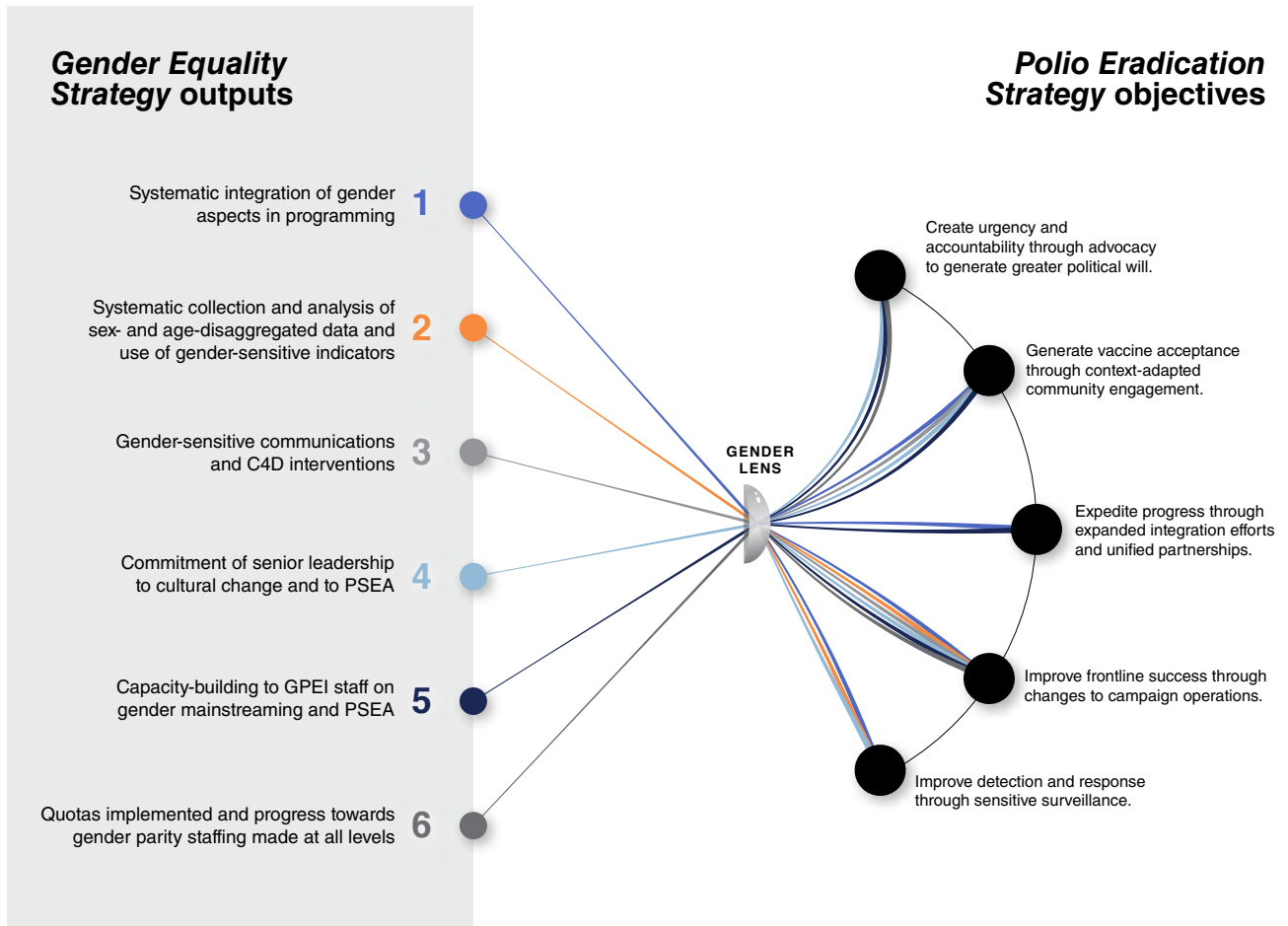
Table F6. Expected Gender Equality Strategy results and key performance indicators

| Expected results | | |
|---|---|---|
| 1 | 2 | 3 |
| The GPEI designs and implements gender-responsive programming and applies a gender perspective in its interventions. | The GPEI leadership, structures and systems support gender-responsive programming and gender-sensitive approaches. | The GPEI is closer to gender parity and increases women’s meaningful participation and agency at all levels of the partnership. |
| Monitored through the following KPIs | | |
| <ul style="list-style-type: none"> % of GPEI interventions that are informed by gender analysis and that collect and analyse sex-disaggregated data (including technical documents, donor reports, NEAPs, SOP guidelines, TAG recommendations, communications and C4D interventions) | <ul style="list-style-type: none"> % of the GPEI 5-year budget allocation to gender mainstreaming including HR, training and gender analysis at the HQ and country levels Existence of a policy on PSEA and safeguarding measures, and a workplan to implement the policy; staff member awareness of the existence of the policy on PSEA/ safeguarding and their appraisal of its effectiveness (% at baseline and after 3-5 years through a survey) % of staff trained and reporting increased knowledge levels, resulting in applying a gender perspective to their work | <ul style="list-style-type: none"> No. of women in decision-making roles at the HQ, regional and country levels out of total no. of women (disaggregated by level, through a baseline HR analysis and after 3-5 years, including GPEI management, advisory and monitoring groups) Perceptions of women and men in the GPEI on gender equality in decision-making (baseline survey and after 3-5 years – staff, governments and GPEI partners) |

C4D = Communication for development; HQ = headquarters; HR = human resources; NEAP = National Emergency Action Plan; PSEA = protection from sexual exploitation and abuse; SOP = standard operating procedure; TAG = Technical Advisory Group.

The **Gender Equality Strategy 2019–2023** is a stand-alone strategy that is linked to and supports the **Polio Eradication Strategy**. On the path to eradication, gender plays an essential role. A gendered lens, when applied across the GPEI and at all levels, improves programme performance and increases impact (see **Fig. F1**). The **Polio Eradication Strategy** and **Gender Equality Strategy** are both overseen by the GPEI SC and have been endorsed by the POB.

Fig. F1. The alignment of the Gender Equality Strategy and Polio Eradication Strategy



C4D = communication for development; PSEA = protection from sexual exploitation and abuse.

Source: WHO.

ANNEX G. nOPV2 CONTINGENCY PLANNING

The successful deployment of nOPV2 will depend on a wide variety of factors, including the properties of the vaccine, the quality of polio immunization activities that will deliver it, community acceptance, financing and vaccine supply, among other factors (see **Annex E** for operational risks). Each factor can be influenced by one or several risks that individually or cumulatively may affect nOPV2's impact and overall polio eradication.

The GPEI has considered a range of potential scenarios with nOPV2 rollout, the critical decisions required to address these scenarios and their possible consequences for polio eradication (see **Fig. G1**).

The primary scenarios have been defined as follows:

- *Current approach*: nOPV2 will be rolled out as countries meet criteria for readiness. If data from the field continue to assess nOPV2 as favourable, mOPV2 and tOPV will be phased out with some supply options maintained until prequalification and full licensure of nOPV2.
- *Parallel option*: If the continuous monitoring of nOPV2 use indicates major issues around the vaccine safety or heightened risk of VDPV2 emergences consequent to its use (leading to changes in its EUL or projected prequalification status), the programme will explore the feasibility of developing backup novel OPV candidates and operationalizing use as soon as possible.
- *Approach B*: If major issues cannot be resolved and the programme must move away from nOPV2, either mOPV2 or tOPV will be used in outbreak response. An independent monitoring board would assess on a twice-yearly basis the feasibility of Approach B to achieve cVDPV2 interruption.
- *Approach C*: If mOPV2 or tOPV use in outbreak response fails to control outbreaks or if there is a major change in the epidemiology, such as co-circulation of different strains or endemicity of cVDPV2, the programme will move to reintroduce Sabin OPV2 into preventive and essential immunization, effectively "reversing the switch". According to the situation, the programme may continue responding to cVDPV2 outbreaks using mOPV2 or tOPV in SIAs or entirely rely on essential immunization to keep the disease burden at low levels.

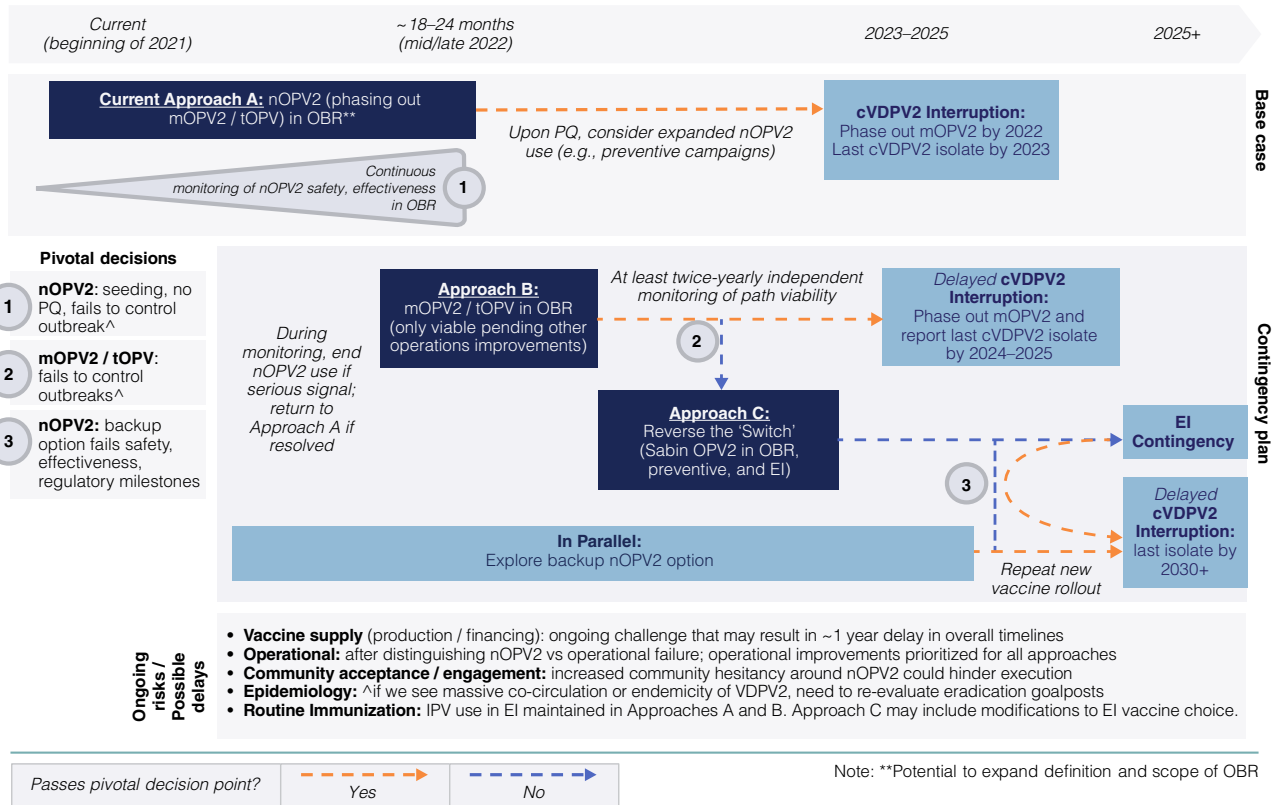
The programme has also considered vaccine use under an essential immunization contingency plan, with the goal of reducing the rate of paralysis due to poliovirus while also maintaining an opportunity to resume the pursuit of eradication pending developments such as new vaccines suitable for the endgame. Four options were identified (IPV and OPV; double-mutant labile toxin (dmLT) adjuvanted IPV only; stand-alone or combination IPV only; and OPV only) and the final decision will ultimately depend upon the epidemiological situation, as well as the capacity for campaigns, development and production timelines and price structures, the maintenance of stockpiles for countries at risk due to immunization gaps, and future ongoing risks of VDPVs and VAPP if the GPEI must consider a long-term control strategy.

nOPV2 rollout and contingency planning

Optimal vaccine choice should be determined based on the existing and prevailing local epidemiological and virologic reality, to ensure circulating serotypes can be most effectively addressed for interruption. This includes the rapid rollout and use of nOPV2 in response to cVDPV2 circulation, where appropriate.

Ensuring that the pivotal decisions influencing nOPV2 use are adequately defined, including the geographic scope and mode of administration, will be critical and will need to be supported by a relevant communication strategy (including crisis communications), based on the mapping of potential scenarios and the identification of pivotal decision points.

Fig. G1. Flowchart of key decisions and potential outcomes for novel OPV rollout



cVDPV2 = circulating vaccine-derived poliovirus type 2; EI = essential immunization; mOPV2 = monovalent oral polio vaccine type 2; nOPV2 = novel oral polio vaccine type 2; OBR = outbreak response; PQ = prequalification; tOPV = trivalent oral polio vaccine.

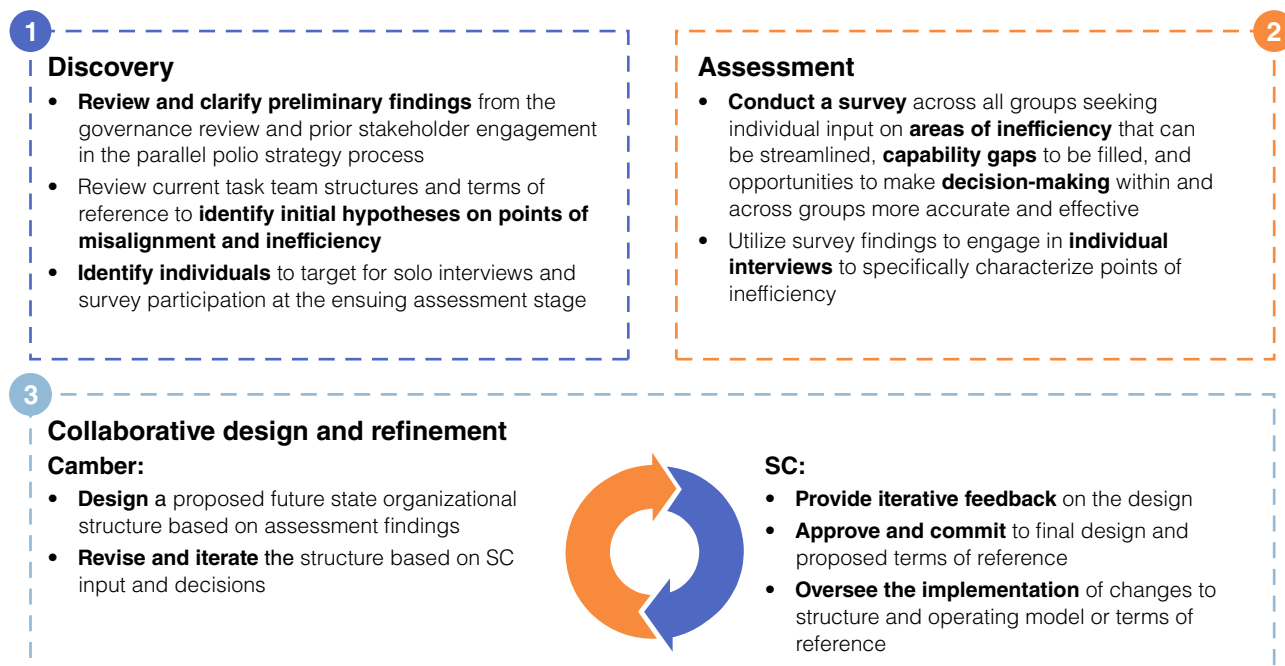
Source: WHO.

ANNEX H. MANAGEMENT REVIEW

In July 2020, following a governance review, the GPEI launched a comprehensive review of internal and external management groups that report to the SC to ensure strategic alignment, streamlined operations and successful execution of the **Polio Eradication Strategy 2022–2026**. This management review was conducted independently by Camber Collective from September 2020 to January 2021 to ensure a confidential and objective review.

The management review involved three phases (see **Fig. H1**) and culminated in highly collaborative and extensive engagement with the SC to design and refine changes to the GPEI structure and ensure the alignment and shared commitment to proposed recommendations.

Fig. H1. GPEI management review process, 2020–2021



SC = Strategy Committee
Source: WHO.

Findings

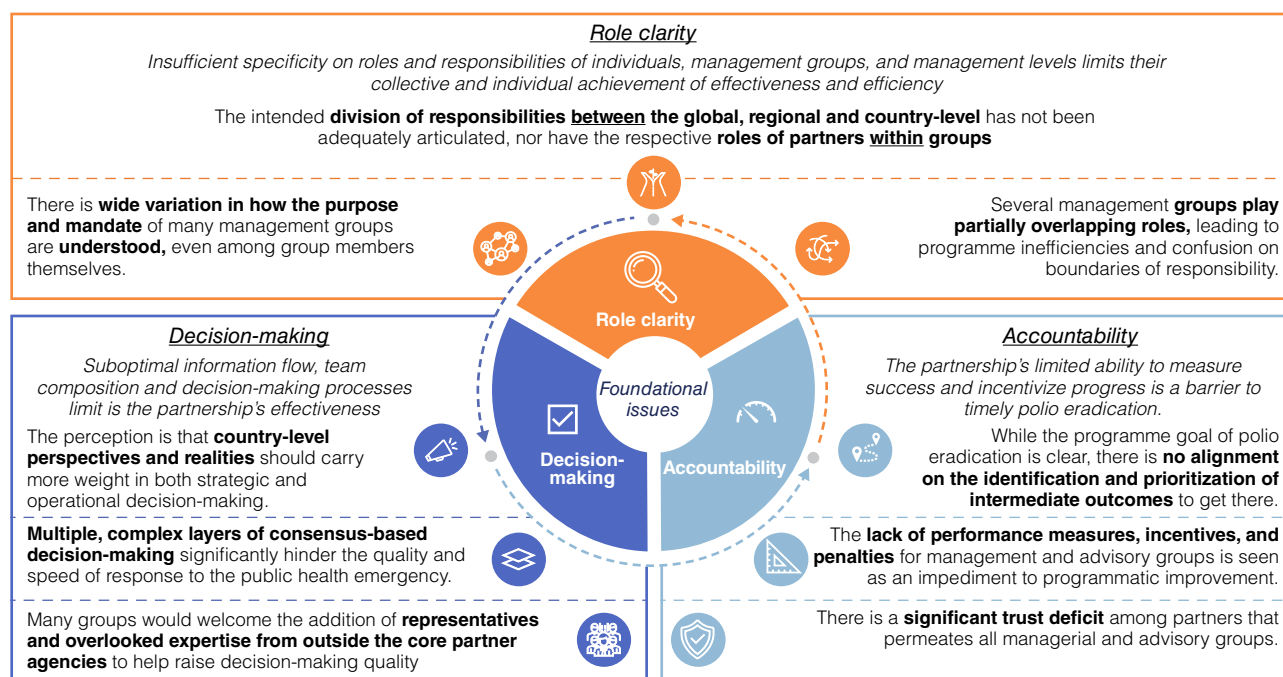
The assessment phase gathered stakeholder perspectives via a survey of over 100 unique respondents and direct interviews with over 35 individuals from the SC, management groups, task teams, partner agencies and external donors.

The assessment found that the GPEI structure required change to become fit for purpose and to effectively deliver on the current strategy. A key theme raised in relation to the emerging strategy was the need to engage regionally in more context-specific and culturally responsive ways. To support the required change within the partnership, imperatives for change were identified across three primary categories: role clarity, decision-making and accountability (see **Fig. H2**).

While these areas of change became the primary objectives of the recommended structural changes, the assessment also acknowledged several foundational issues that require more concerted focus, deeper understanding and ongoing attention and adjustments by the partner agencies. These issues include:

- **Authority:** Given that the GPEI is not a formal legal entity, individual stakeholders do not have the authority to compel the action of others. This more fundamental condition of the partnership is further challenged by decentralized partner agencies that complicate the programme’s ability to coordinate country- and regional-level activities at the level of the SC and the POB.
- **Agility:** The way that partner agency resource commitments are structured makes it difficult to shift allocations or to penalize or replace underperforming staff.
- **Trust:** The assessment found areas where trust between partners and with external stakeholders is strained, particularly by a perception that individual agency interests have at times been placed ahead of the GPEI as a whole. This trust deficit will need to be remedied to operate effectively and achieve solid footing for the eradication effort.

Fig. H2. Imperatives for change



Source: WHO.

Recommendations

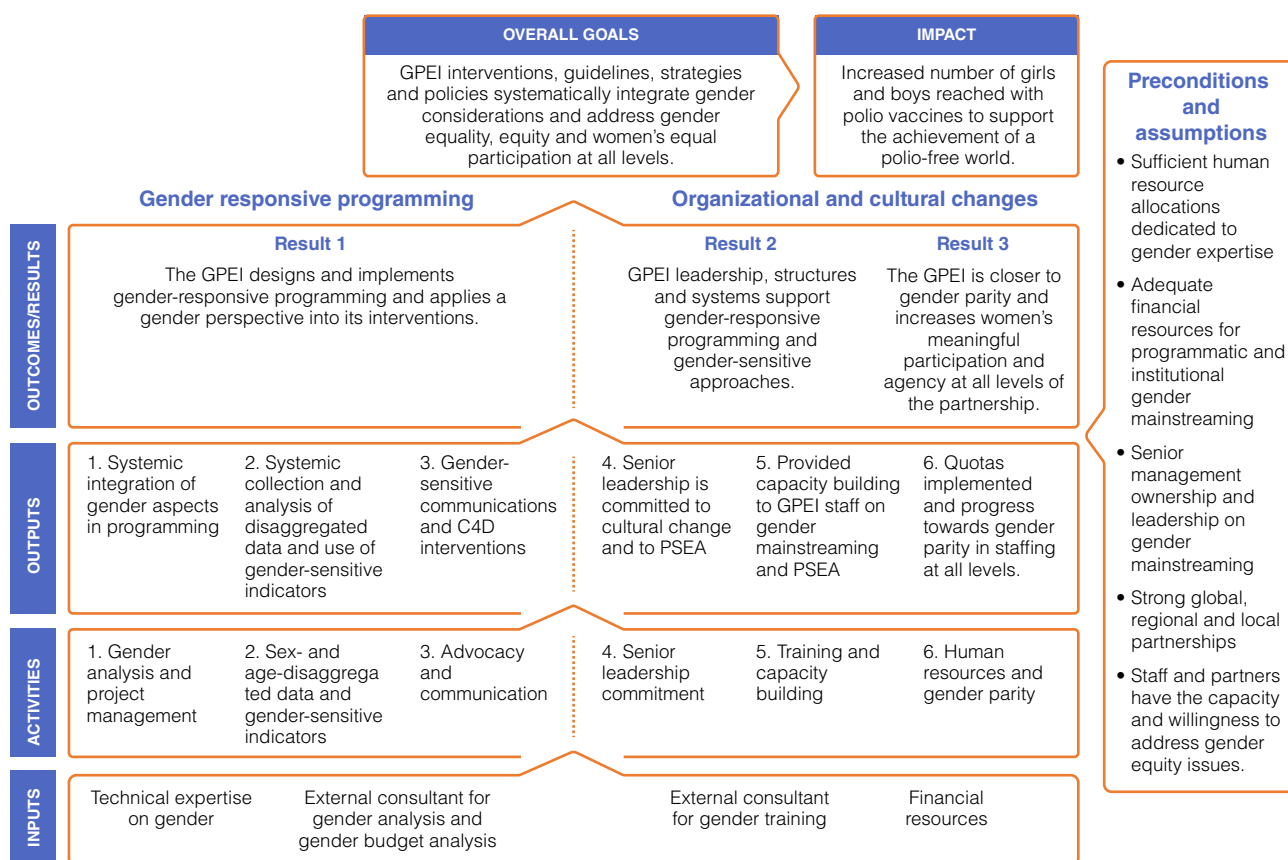
Based on the assessment's findings, the GPEI's structure was revised and updated to help the partnership become more fit for purpose in delivering this strategy on the path towards global eradication (see **Fig. H3**). In addition to rechartering all management groups with consistent terms of reference in alignment with the revised strategy and the core objectives of increasing accountability, role clarity and decision-making effectiveness, changes are already under way to the GPEI's organizational structure across the global and regional levels.

Key changes are focused on:

- establishing and realigning regional structures to confer greater authority to and strengthen accountability with country programmes – specifically, the Outbreak Response & Preparedness Group and the Endemics hub serve to bridge regional response teams with global systems, providing consistent guidance and support while minimizing points of contact and friction to support greater campaign agility and elevate the role of community input and engagement in shaping campaign approaches;
- expanding the stakeholders engaged in and consulted by senior decision-making groups, including the revision of the POB and SC to include one donor representative in order to be more directly responsive to donor input;
- establishing a new Executive Management Unit to support operational accountability for global programme support and regional operations teams, enabling the SC to focus more fully on strategic imperatives;
- consolidating teams to promote efficiency and shifting global functions to the regional level within terms of reference where they can better support targeted response activities; and
- establishing new global programme support groups, where necessary, such as political advocacy groups coordinating efforts across the strategy to build political will and government ownership for polio eradication.

ANNEX I. GENDER MAINSTREAMING

Fig. I1. Gender Equality Strategy vision and logframe



C4D = communication for development; PSEA = protection from sexual exploitation and abuse.

Source: Gender Equality Strategy 2019–2023.

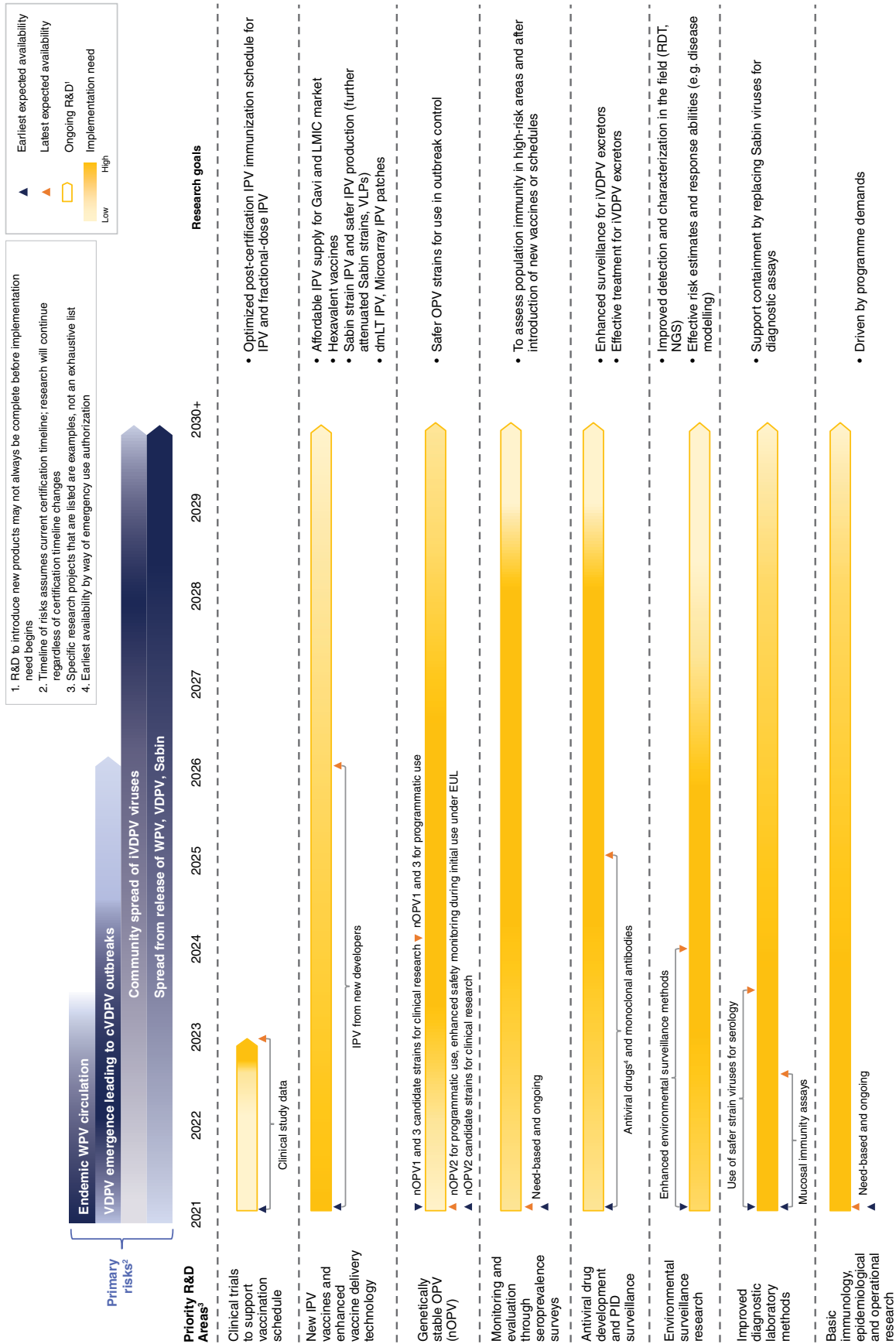
Table I1. Additional gender metrics

| Area | Indicators reported through sex-disaggregated data |
|--|---|
| Gender analysis and mainstreaming | <ul style="list-style-type: none"> • No. of gender-sensitive or gender-specific indicators developed and consistently monitored • No. of clinical research studies and resulting publications reporting sex-disaggregated data and applying sex and gender equity in research (SAGER) guidelines³⁸ |
| Area | Indicators reported through human resource data |
| Women's engagement, equitable recruitment and protection from sexual exploitation and abuse | <ul style="list-style-type: none"> • No. of GPEI advisory and oversight groups reaching gender parity (baseline 1/16) • No. of job descriptions reviewed with a gender lens • % of selection panels with both women and men • % of selection panels with a gender focal point presence • % of job interviews with gender competencies tested |
| Training and capacity-building | <ul style="list-style-type: none"> • No. of implemented gender trainings offered to staff • % of staff that take a gender training course |
| Area | Indicators reported through financial data |
| Adequate financial resources | <ul style="list-style-type: none"> • % of funding allocated to gender technical expertise • % of funding allocated to human resource practices in hiring more women • % of funding allocated to conducting a gender analysis • % of funds to implement training and capacity-building activities on gender • % of funding allocated to improve data metrics • % of countries that submit a budget request with a dedicated funding request for gender |

³⁸ Heidari S, Babor TF, De Castro PTort S, Curno M. Sex and gender equity in research: rationale for the SAGER guidelines and recommended use. Res Integr Peer Rev 1. 2016;2 (<https://doi.org/10.1186/s41073-016-0007-6>, accessed 19 June 2021).

ANNEX J. RESEARCH AND DEVELOPMENT

Fig. J1. R&D pipeline, 2021–2030+



cVDPV = circulating vaccine-derived poliovirus; dmLT = double-mutant labile toxin; EUL = Emergency Use Listing; IPV = inactivated polio vaccine; IVPV = immunodeficiency-associated vaccine-derived poliovirus; mRNA = messenger ribonucleic acid; NGS = next generation sequencing; nOPV 1 & 3 = novel oral polio vaccine types 1 & 3; nOPV2 = novel oral polio vaccine type 2; OPV = oral polio vaccine type 2; OPV2 = oral polio vaccine type 2; OPV2 = vaccine-derived poliovirus; VLP = virus-like particle; WPV = wild poliovirus.

Source: WHO.

Table J1. Array of polio research areas and impact

| S No. | Research area | Impact |
|-------|---|---|
| 1 | Basic immunology – humoral immunity, mucosal immunity, duration of immunity, waning immunity, effect of malnutrition and other variables in relation to polio vaccine; many studies conducted and ongoing | Helps understand the impact of vaccines and vaccination on immunity against poliomyelitis; this knowledge has driven and continues to drive the vaccination policy and the choice of vaccines, and the policy of polio vaccination for travellers was developed based on this knowledge |
| 2 | Type-specific monovalent oral polio vaccines (mOPV1, mOPV2, mOPV3) | Higher per-dose efficacy helps wipe out the transmission in several highly endemic areas; continued vaccine use for outbreak response and part of the stockpile |
| 3 | Bivalent (types 1 and 3) OPV – trials, licensure, WHO prequalification resulting in accelerated development and use | Helps overcome alternating SIAs with mOPV1 and mOPV3 or tOPV, with significant savings and success; continues to be used widely |
| 4 | Accelerated development of genetically more stable nOPV2 for outbreak response | Developed at scale and at risk with EUL approval for outbreak response use, based on phase II clinical and other key data |
| 5 | Safer production of IPV – Sabin IPV, further attenuated S19 strains and more | Contribute to the GPEI IPV pool to overcome the shortfall in supplies; may reduce containment requirements |
| 6 | Fractional dose (1/5th dose) IPV, fIPV immunogenicity well documented, recommended and adopted for use; intradermal injection devices developed; one device WHO prequalified and available for use in EI and fIPV campaigns | Used in many South-East Asian countries and some countries in the Americas; an antigen-sparing and cost-saving option working well in the countries that adopted it |
| 7 | Other antigen-sparing and affordable IPV options, such as adjuvanted IPV, IPV with mucosal immunity, dmLT-IPV, under evaluation | Will help overcome the drawbacks of IPV, including high cost and that it does not provide mucosal immunity per se |
| 8 | Immunization schedules for now and the future – OPV-IPV combination or sequential schedules, IPV only schedules to phase out Sabin OPV | bOPV-IPV schedules with full/fractional IPV dose(s) replaced tOPV schedules; IPV only schedules will cover the OPV cessation era and later will maintain immunity |
| 9 | Non-infectious polio vaccines such as VLPs and mRNA vaccines | Could, if successful, be vaccines of choice, more so in the post-certification era; could be manufactured outside the containment requirements and are essential to maintain polio eradication status |
| 10 | M&E through seroprevalence surveys in selected high-risk areas | Helped managers to better understand the quality, impact and challenges of the vaccination programme and overcome operational issues |
| 11 | Risk assessment of VAPP, VDPV and iVDPV | Helped refine the vaccination policy and develop guidelines for poliovirus surveillance in primary immunodeficiency subjects |
| 12 | Genetic studies including phylogenetics and association with virus mutation | May help better understand the evolution of VDPVs |
| 13 | ES, safer and sensitive lab diagnostics, use of pseudo viruses for mucosal assays, S19 and other new strains | Added to the knowledge about the duration of shedding after the campaigns, faster laboratory results; will reduce the containment requirements and increase rates of detection |

Continued ...

| S No. | Research area | Impact |
|-------|---|---|
| 14 | Use of digital technology – innovations in surveillance and vaccination in security compromised areas, remote estimation of target population through satellite imaging | GIS mapping down to settlements and households helped reduce the problem of missed pockets for increased vaccinator reach |
| 15 | Mobile phone data for microplanning, innovative monitoring tools and practices for assessing SIA coverage and quality | Vaccinator tracking, LQAS helped monitoring and provided insight for improving operations |
| 16 | Operational research to enhance community engagement, ensure gender equity, integration of polio activities with other community level services | Ongoing pilots/research projects may help improve operations and vaccine coverage in specific challenging areas |
| 17 | Exploration of any new ideas/tools/innovative approaches on demand | A continuous process to understand challenges and provide solutions |

bOPV = bivalent oral polio vaccine; dmLT = double-mutant labile toxin; EI = essential immunization; ES = environmental surveillance; EUL = Emergency Use Listing; fIPV = fractional inactivated polio vaccine; IPV = inactivated polio vaccine; iVDPV = immunodeficiency-associated vaccine-derived poliovirus; LQAS = lot quality assurance sampling; M&E = monitoring and evaluation; mOPV1 = monovalent oral polio vaccine type 1; mOPV2 = monovalent oral polio vaccine type 2; mOPV3 = monovalent oral polio vaccine type 3; mRNA = messenger ribonucleic acid; nOPV2 = novel oral polio vaccine type 2; OPV = oral polio vaccine; SIA = supplementary immunization activity; tOPV = trivalent oral polio vaccine; VAPP = vaccine-associated paralytic poliomyelitis; VDPV = vaccine-derived poliovirus; VLP = virus-like particle.

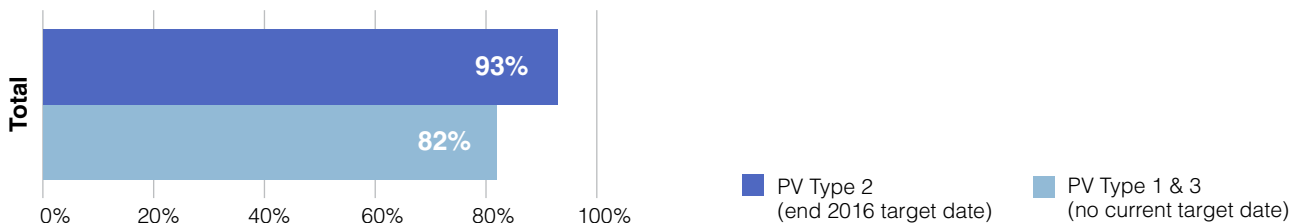
ANNEX K. POLIO CONTAINMENT UPDATE

Key progress and milestones

(as of 15 March 2021)

Phase I

Fig. K1. Percentage of countries/territories with completed poliovirus inventories (total n=214)



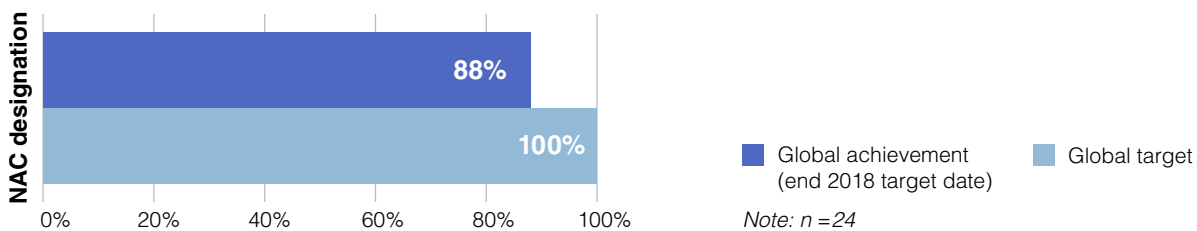
PV = poliovirus.

Source: WHO.

Phase II

National containment governance

Fig. K2. Progress towards the nomination of national authorities for containment



NAC = national authority for containment.

Source: WHO.

Number of countries indicating the intention to retain poliovirus type 2 materials = 24

Number of identified designated type 2 poliovirus-essential facilities: 74

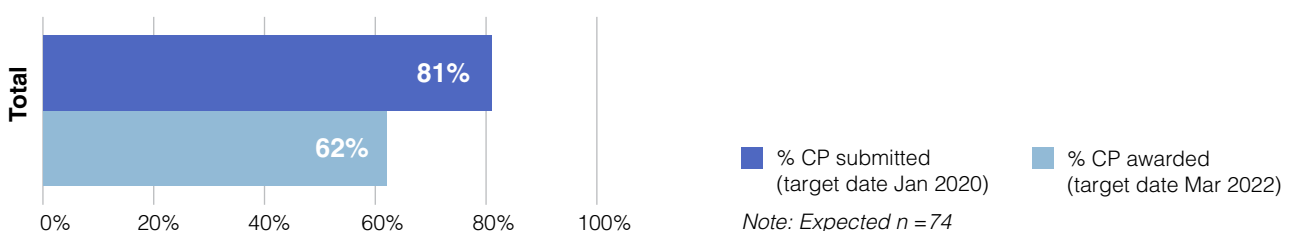
NACs designated by December 2018: Target 100%

Certificate of Participation for PEF:

Certificate of Participation submitted by January 2020: Target 100%

Certificate of Participation awarded by March 2022: Target 100%

Fig. K3. Certificates of Participation submitted and awarded



CP = Certificate of Participation.

Source: WHO.

Country preparedness towards Interim Certificate of Containment (ICC)/CC (current GAPIII compliance)

Number of national lead auditors qualified by end 2021: Target 10

Status: 0 national auditors qualified in the GAPIII

ICC submission

Number of ICC submitted by 24 countries by May 2022 (>70): Target 100%

Status: 0 ICC submitted





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