Global OPV Stockpile Strategy 2026-2029

This document sets out the Global OPV Stockpile Strategy for the period 2026-2029, aligned with the GPEI Polio Eradication Strategy extension to 2029.

Contents

Acronyms and Abbreviations

bOPV	Bivalent oral polio vaccine
cVDPV2	Circulating vaccine-derived poliovirus type 2
CMG	Containment Management Group
DG	WHO Director-General
EMU	Executive Management Unit
EUL	Emergency Use Listing
FMG	Finance Management Group
GAPIV	Global Action Plan to Minimize Post-Eradication Poliovirus Facility-Associated Risk, Fourth Edition
GMP	Good Manufacturing Practices
GPEI	Global Polio Eradication Initiative
IPV	Inactivated Polio Vaccine
fIPV	Fractional dosing of Inactivated Polio Vaccine
sIPV	Sabin Inactivated Polio Vaccine
NAC	National Authority for Containment
OPV	Oral polio vaccine
LSHTM	London School of Hygiene and Tropical Medicine
mOPV1	Sabin monovalent oral polio vaccine Type 1
mOPV2	Sabin monovalent oral polio vaccine Type 2
mOPV3	Sabin monovalent oral polio vaccine Type 3
nOPV1	Novel monovalent oral polio vaccine Type 1
nOPV2	Novel monovalent oral polio vaccine Type 2
nOPV3	Novel monovalent oral polio vaccine Type 3
ORPG	Outbreak Response and Preparedness Group
tOPV	Sabin trivalent oral polio vaccine
PEF	Polio Essential Facility
PRAG	Polio Research and Analytics Group
PV1	Poliovirus Type 1
PV2	Poliovirus Type 2
PV3	Poliovirus Type 3
PSWG	Polio Stockpile Working Group
RI	Routine immunization
SAGE	Strategic Advisory Group of Experts on Immunization
SC	Strategy Committee
SIA	Supplementary Immunization Activity
UNICEF Supply Division	United Nations Children's Fund Supply Division
iVDPV	Immunodeficiency-associated vaccine-derived poliovirus
VSG	Vaccine Supply Group
WHA	World Health Assembly
WHO	World Health Organization
WPV	Wild poliovirus

Executive Summary

This strategy outlines the approach for the Global OPV Stockpile for 2026–2029, aligned with the GPEI Polio Eradication Strategy extension and reflecting programme developments as of Q1 2026. It is aligned with the revised programme milestones, including certification of wild poliovirus type 1 (WPV1) eradication targeted for end-2027 and elimination of circulating vaccine-derived poliovirus type 2 (cVDPV2) targeted for end-2029.

The Global Polio Eradication Initiative (GPEI) has made steady progress toward eradication over the last 15 years. The WHO South-East Asia Region and the WHO African Region were certified wild poliovirus (WPV) free in 2014 and August 2020, respectively. As the programme enters its final phase, the remaining challenges are increasingly concentrated, operationally complex, and highly sensitive to the speed, scale, and quality of outbreak response.

The GPEI Polio Eradication Strategy, extended through to 2029, defines the actions required to interrupt remaining wild poliovirus transmission, eliminate cVDPV2, and achieve global certification. These actions reflect a shift toward intensified, risk-based and geographically focused interventions required to achieve interruption and certification within the extended timeline.

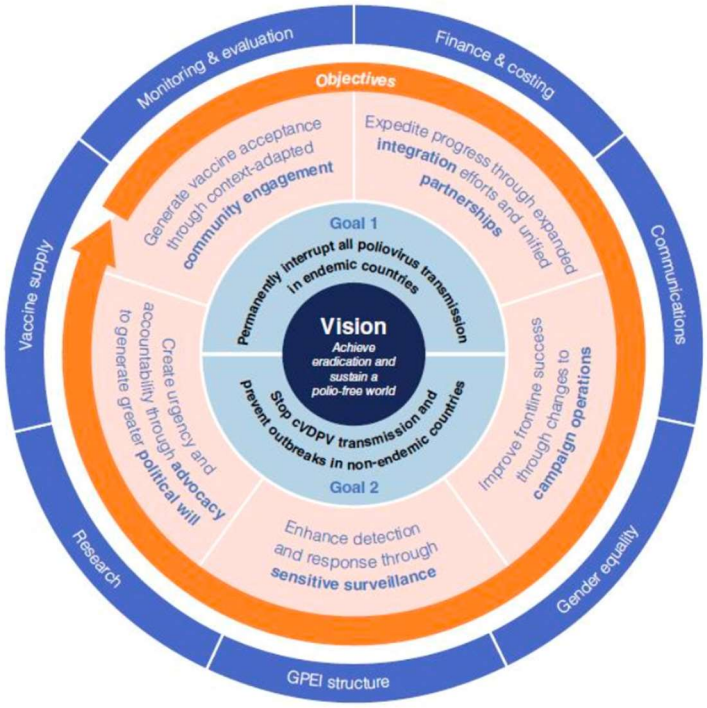


FIGURE 1: THE POLIO ERADICATION STRATEGIC FRAMEWORK

Timely access to appropriate OPV products is a critical enabler of the GPEI Strategy extension to 2029. The Global OPV Stockpile is the programme's principal mechanism for ensuring rapid, reliable, and scalable OPV availability for outbreak response. It facilitates the programme's ability to implement faster, larger, and higher-quality responses required to interrupt cVDPV2 transmission, prevent further spread, and support achievement of eradication and certification milestones.

The global OPV stockpile was established in accordance with the resolutions of the 68th World Health Assembly to ensure GPEI's readiness to respond to poliovirus outbreaks following the withdrawal of OPVs from routine immunization. The stockpile for Type 2 OPV was operationalized in 2015, ahead of the transition from tOPV to bOPV. in April 2016 Stockpiles of Types 1 and 3 poliovirus vaccines are planned to be established following the eradication of WPV type 1 and 3, and prior to the global synchronized withdrawal of type 1 and 3 components of OPV to maintain robust preparedness for potential polio outbreaks in the post bOPV cessation era. Its role has evolved from a contingency reserve to a central operational and strategic instrument for the eradication endgame and a prerequisite for withdrawal. The availability of the stockpiles are prerequisites for cessation, as noted by the Strategic Advisory Group of Experts on Immunization (SAGE).

The purpose of this document is to define the strategy for the development and management of the Global OPV Stockpile through to end-2029. It reflects current operational realities while incorporating forward-looking planning assumptions related to vaccine supply, demand, containment, and programme milestones, including preparation for the post-bOPV cessation period.

The Global OPV Stockpile Strategy for 2026-2029 is structured around two objectives:

1. Ensure timely and sufficient supply of OPV2 to respond to ongoing cVDPV2 outbreaks and maintain an OPV2 stockpile for the post-certification period following the elimination of variant poliovirus transmission
2. Establish a stockpile of type 1 and type 3 OPV, and new products, to prepare for bOPV cessation.

These objectives are applied across the extended eradication timeline, supporting intensified outbreak response through to interruption of transmission, followed by transition to certification and post-cessation preparedness.

Global OPV Stockpile 2026-2029 plan and budget

To achieve the Global OPV Stockpile objectives, the VSG has established a four-component plan and budget defining the scope of work and resources required through to 2029. The plan reflects both ongoing operational requirements and forward-looking needs associated with the eradication endgame, transition to certification, and post-cessation preparedness:

1. Supply of OPV2 doses required to stop cVDPV2 transmission and establish a stockpile for the period following global certification of wild poliovirus eradication.
2. Establishing a stockpile of type 1 and type 3 OPV in preparation for bOPV cessation.
3. Normative work.

These components are implemented across a phased timeline, reflecting intensified outbreak response requirements through to interruption, followed by transition to certification and post-cessation preparedness.

As of Q1 2026, implementation remains ongoing. Resource requirements for the extended period to 2029 will continue to be refined based on evolving epidemiology and updated demand forecasts, production capacity and programme priorities.

Under the extended strategy period to 2029, demand and supply planning are expected to evolve in line with the programme’s phased approach to interruption and certification. Demand for OPV2 is expected to remain elevated in the near term as the programme intensifies outbreak response in priority geographies,

followed by a gradual reduction as transmission is interrupted and the programme transitions toward certification. At the same time, stockpiling requirements for OPV1 and OPV3 will need to be assessed with stockpiles being established as a prerequisite for bOPV cessation and the post-certification period. Planning assumptions will continue to be updated dynamically to reflect epidemiological trends, response strategies and programme decisions. This includes maintaining sufficient flexibility and surge capacity to support faster, larger and higher-quality outbreak responses where required.

Global OPV Stockpile 2026-2029 strategy milestones

Along with the procurement plan and budget, the strategy also maps several critical milestones that determine the development of the Global OPV Stockpile through to the end of 2029, including key eradication, certification and post-cessation decision points (including the relevant Containment considerations at each step). The milestone plan includes targets for supplier diversification, development of novel OPVs, management of Sabin OPVs and the Global OPV Stockpile Strategy reviews.

These milestones are aligned with programme targets for WPV1 interruption and certification (end-2027) and cVDPV2 elimination and certification (end-2029).

Risks and proposed mitigation strategies

Several potential risks have been identified by the VSG that could affect the implementation of the Global OPV Stockpile Strategy and the programme's ability to achieve its objectives across the eradication endgame, certification, and post-cessation period.

1. Lack of OPV supplier diversification and limited production capacities.
2. Uncertainties associated with polio epidemiology and outbreak response quality.
3. Inability to diversify donor base for the Global OPV Stockpile and adequately finance it.
4. Remaining quantities of Sabin OPV2 are expected to expire and/or be destroyed due to the transition to nOPV2 as the preferred vaccine for outbreak response.
5. Long lead-times for vaccine production.
6. Risks associated with transition to the post-certification period, including containment-related constraints and long-term stockpile sustainability.
7. Risk of large-scale or multi-region outbreaks requiring synchronized or expanded response beyond baseline planning assumptions.
8. Risk of delay or failure in the development of novel OPV type 1 and/or 3.

The VSG has developed and continues to operationalize strategies for prevention, mitigation, and management of all of these risks across the lifespan of this strategy.

Conclusion

This document outlines the strategy through to the end of 2029, ensuring that the Global OPV Stockpile supports the achievement of eradication, certification, and post-cessation preparedness objectives. The VSG continues to monitor whether new programmatic decisions or changes in epidemiology affect the strategy's underlying assumptions and will seek guidance from the GPEI Strategy Committee to ensure continued alignment with programme priorities and evolving eradication timelines.

I. Background[1]

History

The Global OPV Stockpile was established in advance of the global switch from use of tOPV to bOPV in April 2016. Given the risk that Sabin mOPV2 poses to seeding a VDPV2 emergence in low mucosal immunity settings, SAGE recommended that stockpiles of Sabin mOPV2 be established and maintained at the global level. Planning activities began in 2005 and procurement activities for the global stockpile were initiated in 2009. The 2015 WHA formally endorsed the SAGE recommendation to establish a stockpile and charged WHO to establish a mechanism for timely release of vaccine to respond to outbreaks (see Governance and Management section below for more details). In April 2016, the globally synchronized switch was implemented. Between 2016 and the end of 2025, over 3.5B doses of OPV2 vaccine have been released from the global stockpile to respond to cVDPV2 outbreaks in 52 countries (see figure below).

This historical evolution underscores the central role of the Global OPV Stockpile as the programme enters its final phase, with continued reliance on rapid and large-scale vaccine deployment to interrupt transmission and achieve certification targets through 2029. With the transition in early 2021 to using nOPV2 as the primary vaccine for type 2 outbreak response, the role of the stockpile has evolved further toward enabling large-scale deployment of more genetically stable novel OPV under the extended eradication strategy.

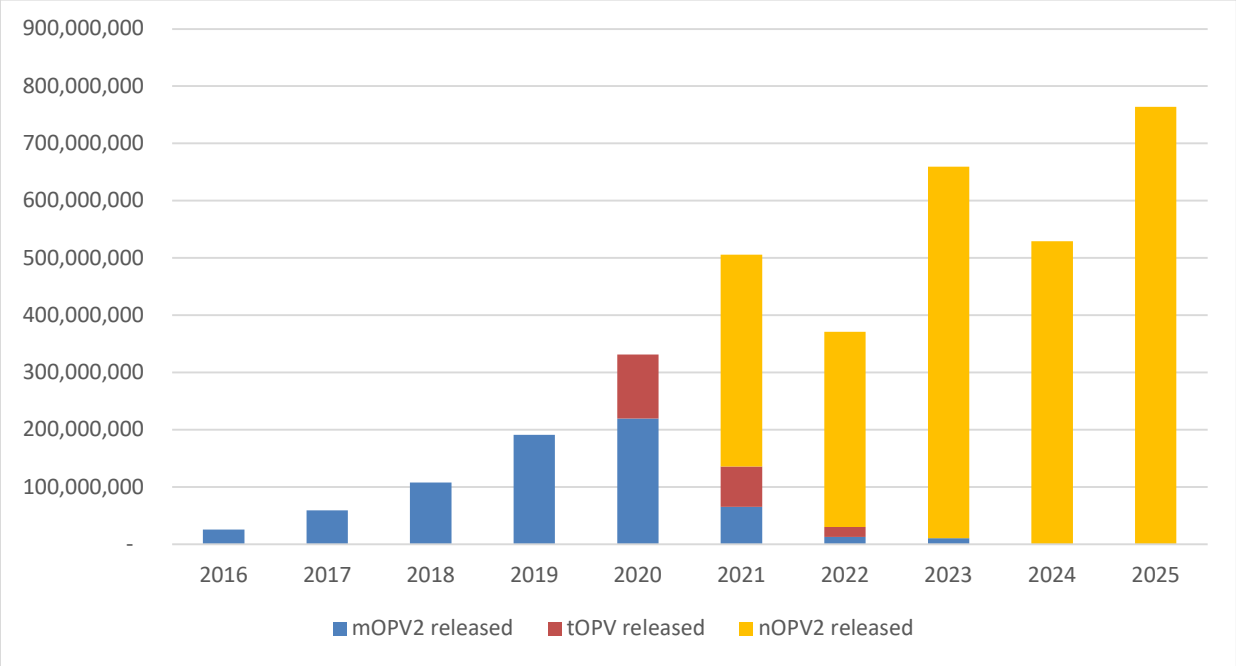


FIGURE 2: RELEASES FROM THE GLOBAL OPV STOCKPILE (APRIL 2016-DECEMBER 2025)

[1] For further information on the background of the GPEI Global OPV stockpile, see Harutyunyan V, Quddus A, Pallansch M, Zipursky S, Woods D, Ottosen A, Vertefeuille J, Lewis I. Global oral poliovirus vaccine stockpile management as an essential preparedness and response mechanism for type 2 poliovirus outbreaks following global oral poliovirus vaccine type 2 withdrawal. Vaccine. 2022 Mar 10:S0264-410X(22)00204-3. doi: 10.1016/j.vaccine.2022.02.058. Epub ahead of print. PMID: 35282924.

Governance and Management

Resolution A68/21 of the World Health Assembly places the management of global OPV stockpiles under the purview of the WHO Director-General (DG). Within the Polio Eradication Department at WHO Headquarters, a team is responsible for managing the stockpile, including oversight, planning, and monitoring. The stockpile is jointly managed by the WHO Polio Eradication Department and the UNICEF Supply Division under a bilateral agreement that describes their respective roles and responsibilities. It enables UNICEF Supply Division to engage with the vaccine manufacturers to negotiate supply agreements on behalf of WHO for the benefit of GPEI, secure replenishment of the stockpile, and manage vaccine shipments to affected countries. These governance arrangements continue to support decision-making and coordination as the programme advances toward interruption, certification, and post-cessation milestones under the extended strategy to 2029.

The VSG is the global programme support group that leads planning and management of OPV stockpiles within the GPEI. Its responsibilities include quarterly reviews of stockpile status, forecasting and planning for OPV supply, and identification and mitigation of risks associated with polio outbreaks, with input from and in consultation with other relevant GPEI Working Groups. The VSG reports to the GPEI Strategy Committee (SC) through the Executive Management Unit (EMU), which coordinates inputs from global and regional programme support groups.

WHA Resolution A68/21 and WHO Executive Board decision EB146/21 Add.1 urged the WHO DG to ensure adequate supplies of OPV2 for PV2 outbreak responses and ensure processes are in place to allocate vaccines distributed from the Global OPV Stockpile equitably and based on evidence.

There are two separate processes in place that facilitate the DG's decision to release OPV2 from the Global OPV Stockpile. The first is guided by the Advisory Group focusing on Sabin mOPV2 Vaccine provision (mOPV2 AG) and examines country requests for Sabin OPV2-containing vaccines. The mOPV2 AG consists of members of the GPEI agencies and independent experts. However, following WHO prequalification of nOPV2 and SAGE recommendation of nOPV2 as the preferred vaccine for type 2 outbreak response, the Sabin OPV2 Stockpile is no longer in use but since 2023 maintained in case of emergencies. As a result, this mechanism is currently inactive as the programme has transitioned to nOPV2 as the primary vaccine for type 2 outbreak response.

The second mechanism, the nOPV2 Release Group (managed by the Outbreak Response and Preparedness Group (ORPG)), advises the WHO DG on the release of nOPV2 from the Global OPV Stockpile. The ORPG, in collaboration with the WHO and UNICEF regional offices, reviews and approves risk assessments, including the scope of cVDPV2 outbreak responses, and advises the WHO DG on the release of nOPV2 from the Global OPV Stockpile, supporting timely and risk-based outbreak response under the extended eradication strategy. In addition, the ORPG decides on prioritisation in case of supply shortages, based on an assessment of programmatic risk amongst DG releases.

Several additional groups play a role in vaccine governance. The Polio Research and Analytics Group (PRAG) supports the VSG in estimating future demand for OPV2 and the size of the stockpile needed to ensure uninterrupted supply of this vaccine for polio outbreak responses. The SAGE Working group on Polio, while not playing a direct role in stockpile governance and management, provides important guidance that informs the size and composition of the Global OPV Stockpile, OPV2 deployment and replenishment. The VSG also collaborates with the GPEI Finance Management Group (FMG) on Global OPV Stockpile budgeting and financing, as well as the Containment Management Group (CMG) on

poliovirus containment within the scope of vaccine production. These coordination mechanisms ensure alignment across supply, containment, financing, and research functions, consistent with the broader objectives of the Polio Vaccine Security Framework.

These governance mechanisms continue to operate as the primary framework for stockpile management and will remain central to programme coordination through to 2029 and into the post-certification period.

II. Strategic Objectives for the Global OPV Stockpile (2026-2029)

The Global OPV Stockpile Strategy guides stockpile development and management in alignment with the GPEI Polio Eradication Strategy extended through to 2029. It reflects the programme's transition into the final phase of eradication, including interruption of transmission, certification, and preparation for the post-cessation period.

The two goals of the current GPEI Eradication Strategy are:

1. Interrupt and eradicate WPV1 in the final endemic countries
2. Stop and prevent type 2 variant poliovirus outbreaks

These goals are pursued within the extended timeline, with certification of WPV1 eradication targeted for end-2027 and elimination of cVDPV2 targeted for end-2029.

GPEI's ability to ensure an uninterrupted supply of polio vaccines to support immunization is a critical enabler of achieving polio eradication programme goals. The Global OPV Stockpile is an important mechanism that enables the supply of vaccines to respond to poliovirus outbreaks after the use of OPV has been discontinued.

The objectives of the Global OPV Stockpile Strategy for the period to 2029 are:

1. Ensure timely and sufficient supply of OPV2 to respond to ongoing cVDPV2 outbreaks and maintain an OPV2 stockpile for the post-certification period following the elimination of variant poliovirus transmission.
2. Establish a stockpile of type 1 and type 3 OPV, and new products, to prepare for bOPV cessation.

The table below maps the GPEI eradication goals (as extended to 2029) against the objectives of the Global OPV Stockpile Strategy.

GPEI Eradication Goals (extended to 2029)	Global Stockpile Supporting Objective
1. Interrupt and eradicate WPV1 in the final endemic countries	1. Establish a stockpile of type 1 and type 3 OPV, and new products, to prepare for bOPV cessation (the establishment of OPV1 and OPV3 stockpiles serves as a mechanism to safeguard GPEI progress on wild poliovirus eradication during the post bOPV cessation period)
2. Stop and prevent type 2 variant poliovirus outbreaks	2. Ensure timely and sufficient supply of OPV2 to respond to ongoing cVDPV2 outbreaks and maintain an OPV2 stockpile for the post-certification period following the elimination of variant poliovirus transmission

TABLE 1: GPEI GOALS AND GLOBAL OPV STOCKPILE OBJECTIVES

This strategy builds on guidance and decisions provided in 2017 following the *Polio Stockpile Programme Review* while incorporating updated assumptions and planning parameters aligned with the extended eradication timeline to 2029.

It also builds on the milestones set out in the polio eradication programme, including the interruption of WPV1 (with certification timelines now aligned to end-2027) and cVDPV2 transmission (with

elimination timelines aligned to end-2029), followed by global certification of eradication by the end of 2029. A withdrawal of bOPV will follow once certification conditions are met and established triggers achieved, including the availability of stockpiles of OPV1 and OPV3.

The above milestones and planning parameters remain subject to revision based on epidemiology, programme performance and certification timelines. To ensure this strategy remains responsive to programme needs, the VSG will periodically review its implementation and underlying assumptions and update the OPV replenishment plan as required. In addition, the VSG reviews the OPV replenishment plan annually and modifies it considering the changing demand forecasts that are driven by epidemiology and outbreak response capacity.

The remainder of this document outlines the key activities required to achieve the strategic objectives of the Global OPV Stockpile Strategy through to 2029:

- Develop and implement a supply plan aligned with evolving epidemiology and demand forecasts to ensure sufficient OPV2 availability for outbreak response and to establish OPV1, OPV2 and OPV3 stockpiles for the post-cessation period.
- Estimate and refine the financial resources required to implement the strategy across the extended timeline.
- Assess the OPV production landscape and ensure that sufficient manufacturing capacity and supplier diversification are in place to meet programme needs.
- Work to ensure that vaccine production and stockpile management align with GAPIV containment requirements.
- Identify and manage risks to ensure a sufficient, timely and uninterrupted supply of OPVs.
- Define critical stockpile milestones and decision points across the strategy period, including those related to eradication, certification, and post-cessation preparedness.

III. Supply Plan (2026-2029)

Detailed below are the components of the OPV supply plan implemented as part of the Global OPV Stockpile Strategy for the period to 2029. The supply plan reflects forward-looking planning assumptions aligned with the extended eradication timeline, including interruption, certification and post-cessation preparedness.

Stockpile Objective 1: Ensure timely and sufficient supply of OPV2 to respond to ongoing cVDPV2 outbreaks and maintain an OPV2 stockpile for the post-certification period following the elimination of variant poliovirus transmission

Having a sufficient supply of OPV2 to respond to cVDPV2 outbreaks is a critical enabler of achieving goal two of the global polio strategy. To ensure effective planning of OPV2 supply, the VSG, with assistance from the London School of Hygiene and Tropical Medicine (LSHTM), developed a model-based demand forecast of OPV2 requirements extending through to 2030, aligned with the extended certification timeline. The model, at a high level, reflects a low risk tolerance for nOPV2 shortages. While accounting for the increased nOPV2 stability and its lower seeding risk in comparison to Sabin mOPV2, it also considers the possibility of significant geographical spread of cVDPV2 and continued transmission of cVDPV2 outbreaks. While this forecast is intended to cover a wide range of scenarios, some events, such as outbreaks requiring continent-wide or multi-region synchronized campaigns, are not covered. In such scenarios, the model and its associated supply planning assumptions would require rapid reassessment to more accurately project supply requirements availability. (For more information on the forecast model and its methodology, see Appendix 2).

This forecast was initially endorsed by the GPEI Strategy Committee and subsequently updated through structured review cycles to reflect evolving epidemiology and programme strategy. The forecast incorporates the programme’s phased approach to cVDPV2 elimination, with intensified response in priority geographies followed by progressive interruption of transmission across regions.

nOPV2 is the primary vaccine for type 2 outbreak response and remains central to achieving interruption of cVDPV2 transmission under the extended eradication strategy.

Stockpile Objective 2: Establish a stockpile of type 1 and type 3 OPV, and new products, to prepare for bOPV cessation

To prepare for the discontinuation of bOPV use following certification of eradication, OPV 1 and 3 stockpiles must be established ahead of time to respond to potential polio outbreaks. The VSG relied on the Polio Stockpile Working Group's (PSWG) 2017 review and the May 2021 planning exercise to estimate the volumes of OPV1 and OPV3 to be included in the stockpile. According to the PSWG work, 1 billion bulk doses and 100 million converted doses of OPV1, as well as 500 million bulk doses and 50 million converted doses of OPV3, should be prepositioned in the Global OPV Stockpile for the post-bOPV cessation period. This work is critical to ensuring preparedness for the post-certification period, during which rapid response capability must be maintained following the global cessation of bOPV, but also as a trigger for bOPV withdrawal as defined by SAGE.

Novel OPV types 1 and 3 are currently under development as of Q1 2026. The precise timing of product availability remains uncertain and continues to be monitored by the programme. Specific risks include potential clinical study implementation challenges and delays, including in the production or testing of clinical trial material, ethical and other approvals of studies, laboratory capacity for completion of assays,

and regulatory pathways, e.g. if nOPV1 and nOPV3 would be considered eligible for WHO Emergency Use Listing (EUL) which would allow submission of a regulatory file based on phase II data as was applied to nOPV2, or if the regulatory requirement is to provide a full data set for licensure and prequalification based on phase III data. With these caveats in mind, current projections are that should EUL be granted to these vaccines based on phase II study data, nOPV1 may become available by end 2028 (dossier submission planned for Q3/2027), followed by nOPV3 availability in early 2029 (dossier submission planned for Q1/2028).

If these vaccines are not considered eligible for EUL and if full clinical development is required before use, WHO Prequalification (PQ) is tentatively expected in late 2030 for nOPV1 and late 2031 for nOPV3. In addition, a combination novel vaccine is being developed, with WHO PQ approval anticipated by late 2031. Depending on timing of product availability and cessation timelines, interim stockpiling of Sabin OPV1 and OPV3 may be required prior to transition to novel OPVs. (For more information, see the budget section).

Planning for OPV1 and OPV3 stockpiles will continue to be refined as certification timelines, cessation decisions and product availability evolve toward 2029, with the expectation that a lead time of minimum 2 years will be required.

Table 2 presents the projected supply plan for 2026-2029 for nOPV2, and for OPV1 and OPV3 required in accordance with the currently projected timeline for bOPV cessation (whereby the stockpiles would need to be in place before cessation). Future annual procurement decisions will continue to be informed by updated OPV demand forecasts, evolving outbreak epidemiology, and applicable outbreak response policies and standards. This objective ensures that the stockpile retains the flexibility required to respond to low-probability, high-impact events that could otherwise delay interruption and certification timelines.

Millions of doses	Presentation	Product	2026	2027	2028	2029	TOTAL
Type 1 and 3 OPV	Bulk	OPV1	–	–	500	500	**1,000**
Type 1 and 3 OPV	Bulk	OPV3	–	–	250	250	**500**
Type 1 and 3 OPV	Filled	OPV1	–	–	–	100	**100**
Type 1 and 3 OPV	Filled	OPV3	–	–	–	50	**50**
nOPV2	Filled	nOPV2	540*	668	642	450	**2,300**
nOPV2	Bulk	nOPV2	–	–	–	250	**250**

* Actual projection as of August 2026, not modeled data.

TABLE 2: GLOBAL OPV STOCKPILE SUPPLY PLAN FOR 2026-2029 (IN MILLIONS OF DOSES).

IV. Global OPV Stockpile plan and budget

The costing of activities within the scope of this strategy is structured around a four-component budget that outlines the scale and distribution of financing required to support implementation through the extended strategy period to 2029.

1. **Supply of OPV2 doses required to stop cVDPV2 transmission ($405.1M)**. The VSG worked in partnership with LSHTM to estimate the required amount of OPV2 needed to respond to VDPV2 outbreaks and permanently interrupt its transmission. (See Appendix 2 for more details). Demand projections for OPV2 extend the planning assumptions through to 2029 in line with the extended eradication timeline. These projections are based on a dynamic epidemiological model that incorporates phased elimination, evolving outbreak response strategies, and updated immunity assumptions, and is periodically refined to reflect programme developments. The strategy includes planning for a strategic stockpile of nOPV2 in bulk form of approximately 1B doses to support post-certification preparedness and contingency response, with procurement volumes adjusted over time based on demand forecasts and programme priorities. Demand for OPV2 is expected to remain elevated in the near term as outbreak response is intensified, followed by a gradual reduction as transmission is interrupted and the programme transitions toward certification.
2. **Establishing a stockpile of type 1 and type 3 OPV in preparation for bOPV cessation ($233M)**. The VSG relied upon the 2017 PSWG review and the 2021 SC-endorsed OPV demand scenario to estimate the required number of doses to establish a stockpile for type 1 and type 3 OPV vaccines. Current planning assumptions indicate that approximately 1B doses of OPV1 and 500 million doses of OPV3 bulk may be required to be prepositioned to support post-bOPV cessation preparedness. Initial bulk and conversion timelines are currently projected for 2028 and 2029, with further refinement required as cessation timelines and stockpiling strategies evolve. These estimates will continue to be refined as the programme approaches cessation and as certification timelines and product availability become clearer.
3. **Normative / Capacity Building ($80k)**. Normative and capacity-building activities are critical enablers of effective vaccine deployment and outbreak response performance across the programme. A budget of $80,000 is allocated in this strategy to carry out the necessary activities in this field.

The initial multi-year cost estimates for the stockpile strategy are presented below, reflecting baseline planning assumptions, with ongoing refinement required for the extended period to 2029.

Item	2026	2027	2028	2029	TOTAL
Type 1 and 3 OPV Stockpile	-	-	111,250,000	121,750,000	233,000,000
nOPV2	89,100,000	111,890,000	107,535,000	96,625,000	405,150,000
Normative / capacity building	20,000	20,000	20,000	20,000	80,000
Total	**89,120,000**	**111,910,000**	**218,805,000**	**218,395,000**	**638,230,000**

TABLE 3: GLOBAL OPV STOCKPILE BUDGET (BASELINE 2026-2029), COSTED IN USD MILLIONS.

It should be noted this estimate of the multi-year cost to implement the stockpile strategy does not account for:

- Potential overlapping procurement of Sabin OPV1 and OPV3 and novel OPV1 and OPV3 to build type 1 and 3 stockpiles. The need to initially stockpile Sabin bulk and finished product and later replace by novel vaccines may increase budget requirements depending on cessation timelines.
- Potential costs associated with pursuing a 20-dose presentation of nOPV2 if introduced; potential costs associated with expanded use, if implemented.
- Potential inflation of supply prices.

Additional adjustments may be required as programme timelines, product availability and market conditions evolve through to 2029.

V. OPV production landscape

A diversified supplier base remains a key enabler for achieving the objectives of the stockpile strategy. Another critical enabler is total production capacity, and if multipurpose facilities, capacity secured or dedicated to stockpile products. Ensuring sufficient and reliable production capacity across this constrained market is critical to supporting the programme's objectives through interruption, certification, and post-cessation preparedness under the extended strategy to 2029.

There is no conventional commercial market for the vaccines distributed through the Global OPV Stockpile. Given the absence of commercial markets vaccines are produced to order only, and the costs of undertaking technology transfers to additional manufacturers given the size of the market and the anticipated eventual sunsetting, the supplier base for the stockpile is extremely limited. A deliberate strategy of supplier diversification has been successfully pursued to address these challenges and reduce risks to vaccine supply, with a second nOPV2 manufacturer now having achieved prequalification of finished product based on in-house drug substance production. Supplier diversification comes at the cost of increasing the price of the vaccine since vaccine orders will need to be split across multiple manufacturers, thereby reducing the ability to benefit from production at largest scale. Finally, longer-term demand visibility has been a consistent request from the suppliers, and a projection for 2026-2030 has been developed to support supplier planning. This enables suppliers to better plan their production and prioritize stockpile vaccines over other products.

Novel OPV2

In 2020, nOPV2 was the first vaccine in history that was deployed under an EUL. Initially, only one supplier produced nOPV2, and a second supplier became operational in 2024. The addition of a second supplier serves to reduce the risk that nOPV2 supply will be disrupted due to reliance on a single supplier producing and storing vaccine in a single location under the oversight of a single national regulatory authority. GPEI continues to collaborate closely with both suppliers to avoid disruptions in nOPV2 production capacity and has implemented other risk mitigation measures such as establishing a buffer stock of nOPV2 of both finished product and drug substance.

Earlier versions of this strategy presented forward-looking projections developed during the EUL phase. Since WHO prequalification of nOPV2 and its endorsement by the SAGE as the preferred vaccine for cVDPV2 outbreak response, manufacturing has transitioned from an emergency scale-up phase to a more stable and predictable production model.

The figure now reflects realized production capacity and updated 2026 supply planning assumptions. While regulatory uncertainty is no longer a primary risk factor, supply planning continues to account for variability in outbreak epidemiology, campaign intensity, and global response policies. Ongoing coordination with manufacturers and continuous demand forecasting remain essential to ensure timely availability of nOPV2 and to mitigate the risk of short-term supply-demand imbalances. Sustained availability of nOPV2 at scale is essential to achieving interruption of cVDPV2 transmission and supporting certification targets under the extended eradication strategy.

Sabin OPV2

Two manufacturers were awarded contracts to supply the global programme following the first OPV bulk supply tender in 2009. To meet rising demand for mOPV2, the programme's supplier pool was expanded to three in 2019. Since then, most Sabin mOPV2 bulk in the stockpile has been converted, and the

remaining two manufacturers that produced Sabin OPV2 for the Global OPV Stockpile have since shifted away from producing Sabin OPV2 (noting that one still maintains 87 million doses of tOPV in bulk form). Since 2023, Sabin OPV2 no longer plays a role in regular outbreak response and remaining quantities are being managed under time-limited storage and disposal arrangements. This transition reflects the programme's shift toward exclusive reliance on nOPV2 for outbreak response and the gradual resolution of legacy Sabin OPV2 stock management as the programme advances toward certification.

OPV1 and OPV3

The OPV production landscape is a key determinant of the programme's ability to ensure uninterrupted vaccine supply and manage risk through the eradication endgame and beyond. Based on the current timeline for bOPV withdrawal, the work to engage suppliers of OPV1 and OPV3 has been initiated in line with programme timelines, following a decision on whether to start stockpiling Sabin or Novel OPV (see Table 4: Global OPV Stockpile 2026-2029 Strategy Decisions and Milestones). These activities are directly linked to preparation for bOPV cessation and ensuring the availability of appropriate vaccines for outbreak response in the post-certification period. Planning for OPV1 and OPV3 supply will continue to evolve as product development timelines, manufacturing capacity and programme decisions on cessation become clearer through to 2029.

Manufacturers engaged in nOPV2 production are expected to be able to supply the Global OPV Stockpile with nOPV1 and nOPV3 once clinically developed and approved by WHO. The activities associated with manufacturing at scale will be determined through a separate assessment. This assessment will be informed by factors including manufacturer capacity as demonstrated through nOPV2 production, and emerging information on yields of nOPV1 and nOPV3 based on pilot scale yields and assumptions on capacity at larger scale production.

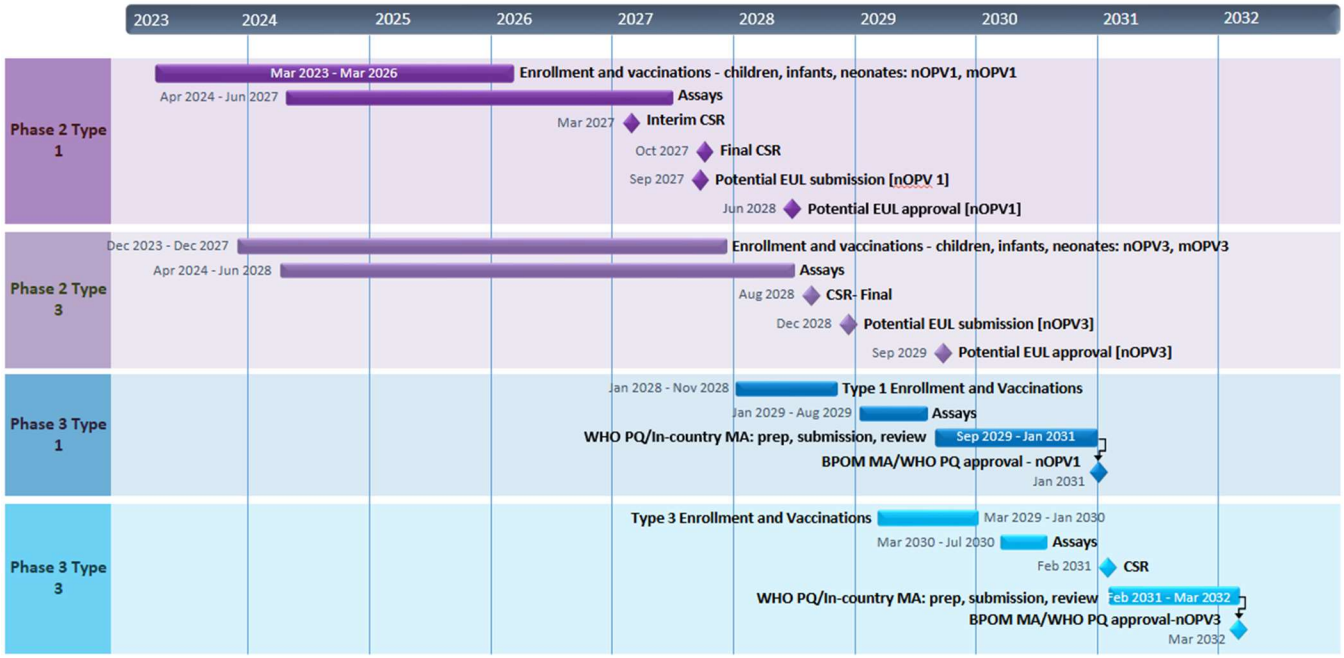


FIGURE 3: NOPV MONOVALENT CLINICAL DEVELOPMENT PLAN (AS 18 MARCH 2026).

Note that these are modeled projections for planning purposes and subject to change

VI. Poliovirus Containment and Implications for OPV Supply

As the GPEI advances toward interruption and certification milestones (WPV1 by 2027 and cVDPV2 by 2029), containment remains a critical component in ensuring a safe, sustainable, and uninterrupted vaccine supply, including during the transition to certification and into the post-cessation period. The programme works to minimize the risk of reintroduction of polioviruses from facilities retaining poliovirus materials, in alignment with global certification requirements.

The containment approach focuses on reducing the number of facilities retaining poliovirus materials, ensuring compliance with international containment standards, and preparing for containment requirements associated with certification and cessation milestones. These activities will become increasingly important as the programme approaches certification milestones and containment requirements expand to additional poliovirus types.

The VSG will continue to work with the CMG to assess timing and implications for manufacturers to safeguard continuity of vaccine supply while ensuring alignment with evolving containment requirements through certification and into the post-certification period. Because the majority of WPV containment breaches documented in recent years have occurred at IPV vaccine manufacturing sites, ensuring full certification for polio vaccine producers as soon as possible is a critical component of the containment strategy. The WHO Global Action Plan for Poliovirus Containment (GAPIV) provides the most recent guidance on containment requirements at polio vaccine manufacturing sites, which will become increasingly consequential as more facilities transition to post-certification containment status.

The following specific areas related to containment could potentially have a considerable impact on supply and will require close monitoring and management by the VSG moving forward.

Current Status of Containment Requirements and Implications for Suppliers

Type 2 Containing Oral Poliovirus Vaccines

Under the WHO Global Action Plan to minimize poliovirus facility-associated risk (GAPIV), enhanced containment requirements apply to facilities retaining type 2 poliovirus materials, including vaccine manufacturing sites. For the Global OPV Stockpile, this has direct implications for Sabin type 2-containing vaccines, including mOPV2 and any legacy tOPV materials. Following the global withdrawal of type 2 OPV from routine immunization in April 2016, manufacturers of Sabin OPV2 have been required to work with their respective National Authorities for Containment (NACs) to pursue certification as poliovirus-essential facilities (PEFs) in accordance with GAPIV. nOPV2, as a genetically stabilized type 2 vaccine, is subject to containment oversight under GAPIV but operates under an approved containment waiver framework, reflecting its modified genetic profile and role in outbreak response. Production of nOPV2 is therefore conducted under defined biosafety and GMP requirements consistent with the terms of that waiver.

To date, manufacturers supplying OPV under contract to GPEI have entered or progressed through the GAPIV certification process for Sabin OPV2 production, while nOPV2 manufacturers operate under the applicable waiver conditions. A limited number of manufacturers have indicated plans to exit poliovirus vaccine production as part of broader portfolio decisions. In this context, no immediate structural changes are planned for existing suppliers; however, continued compliance with GAPIV requirements and adherence to the nOPV2 containment waiver will continue to be closely monitored in coordination with

the Containment Management Group (CMG) to mitigate potential impacts on production capacity and stockpile security.

As of Q1 2026, with the transition to nOPV2, Sabin OPV2 production has ceased, and remaining materials are limited to residual stocks of drug substance and finished product under controlled storage and containment arrangements.

Management of residual Sabin OPV2 stocks will remain a transitional issue as the programme advances toward certification and full reliance on nOPV2.

Type 1 and Type 3 Containing Oral Poliovirus Vaccines

Continued global use of bOPV in routine immunization and outbreak response means that vaccine manufacturing facilities retaining type 1 and type 3 poliovirus materials are not yet subject to the same enhanced containment requirements that apply to type 2 materials under GAPIV. However, non-vaccine type 3 materials (e.g., laboratory materials) remain subject to applicable containment requirements. Under the extended eradication timeline, certification of WPV1 eradication is now targeted for end-2027, and planning for cessation and associated containment transitions must therefore be considered within the upcoming stockpile strategic horizon. These evolving requirements have direct implications for supplier engagement, production planning and stockpile management under the extended strategy period.

Once global cessation of bOPV is formally implemented following certification decisions, manufacturers retaining type 1 and type 3 poliovirus materials will be required to comply with enhanced containment requirements under GAPIV, including potential poliovirus-essential facility (PEF) designation where applicable. The VSG will work closely with the Containment Management Group (CMG) to assess timing, regulatory triggers and implications for manufacturers in order to safeguard vaccine supply continuity while ensuring full alignment with evolving containment obligations through 2029 and into the post-certification period. These transitions will be a key determinant of supply continuity and supplier participation through to 2029 and beyond.

Areas for coordination between the VSG and CMG under the extended strategy period

There are two primary areas of focus for coordination between the VSG and CMG during the extended strategy period: i) establishing a smooth process for evaluating whether current or potential suppliers to GPEI comply with, or in process, of becoming compliant with containment requirements; and ii) ensuring coordinated monitoring of type 2 containing vaccine stocks in the field. This coordination is achieved through ongoing coordination and communication between the VSG and CMG. This coordination will remain critical as containment requirements evolve toward certification and post-cessation implementation.

Potential risks to uninterrupted supply and proposed mitigation strategies

Risk: Supply diversification efforts could be affected if nOPV2 becomes subject to additional containment requirements under GAPIV.

Mitigation: Proactive communication and planning between VSG and CMG, involving nOPV2 manufacturers, as and when necessary. Ongoing monitoring of regulatory and containment developments will be essential to mitigate potential impacts on supply continuity. Note that the Polio Vaccine Security Framework was designed to endure additional coordination between groups, thereby serving to mitigate.

VII. Enabling Activities (Normative Work and Capacity Building)

Normative work and capacity-building activities are critical enablers of effective vaccine deployment and outbreak response performance under the extended eradication strategy to 2029. These activities support the timely and appropriate use of vaccines in increasingly complex operational contexts as the programme advances toward interruption and certification.

Furthermore, VSG supports capacity-building activities to ensure that the norms and standards are understood and applied throughout the OPV supply chain, from vaccine production and storage to vaccine withdrawal and utilization.

The following is a non-exhaustive list of the key normative documents, developed by the VSG, currently posted on polioeradication.org:

- Vaccine Request Forms (for each vaccine – mOPV2, tOPV and nOPV2 – in a range of languages).
- Cold chain logistics and vaccine management during SIAs.
- Technical guidance on vaccine management, monitoring, removal, and disposal for type-2 containing vaccines.

These documents are updated to align with any changes, e.g., new wastage requirements or new outbreak response SOPs.

Key capacity-building activities include:

- Remote and face-to-face trainings for Cold Chain Logistics and Vaccine Management professionals.
- Introductory webinars for each country team on the use of type-2 containing vaccines in advance of developing their outbreak response plans.
- Preparing standardized training materials and job aids for the in-country pre-campaign capacity building for supervisors and vaccinators.
- Documenting and sharing lessons learned.
- Establishing a Cold Chain Logistics and Vaccine Management community of practice by introducing technical web forums and webinars.

These activities will remain essential through the endgame period, particularly as outbreak response becomes more targeted, operationally complex, and time-sensitive in the lead-up to certification.

VIII. Risks and Mitigation

Risk mapping and mitigation are key components of this strategy and aim to improve the predictability and reliability of OPV supply in response to poliovirus outbreaks in the post-OPV cessation period. The following are the risks that GPEI will manage over the period of this strategy.

Limited supplier diversification and limited supply capacity

As reliance on Sabin OPV2 has discontinued and the programme has transitioned to nOPV2 as the primary type 2 outbreak response vaccine, and with market exits from OPV overall of two suppliers, the remaining Sabin OPV2 production capacity has contracted accordingly. to a single source market. This reduction in the Sabin OPV2 manufacturing base, combined with containment certification requirements under GAPIV, reinforces the importance of proactive supply planning during the transition period.

For nOPV2, supply has expanded beyond the initial single-manufacturer model; however, production remains concentrated within a limited number of facilities and regulatory jurisdictions. While WHO prequalification and scale-up have strengthened supply stability, concentration risk persists, particularly in the context of containment waiver arrangements, regulatory oversight, and potential facility disruptions. Ensuring diversified manufacturing capacity and close coordination between supply, regulatory and containment governance bodies will remain essential to mitigate risks to nOPV2 availability through 2029 and into the post-certification period. (Refer to the “OPV production landscape” section for a description of measures undertaken to manage this risk.)

Uncertainties associated with polio epidemiology and outbreak response quality. These risks are particularly relevant under the extended strategy period, where intensified and geographically focused outbreak response is required to achieve interruption and certification targets.

The dynamics of cVDPV2 outbreaks and the GPEI's ability to effectively respond to them have a significant impact on OPV2 demand estimates. The Global OPV Stockpile supply plan incorporates additional vaccine supply to mitigate the impact of unexpected increases in OPV2 demand, including large-scale outbreaks or changes in outbreak response strategies.

VSG will collaborate closely with PRAG, ORPG, and other groups to review Global OPV Stockpile planning parameters on an annual basis and adjust the replenishment plan accordingly. Extraordinary reviews will be conducted in response to any unexpected change in context that affects demand for vaccines supplied through the Global OPV Stockpile.

Inability to expand donor base for the Global OPV Stockpile and to source adequate financing

In general, GPEI is still mobilizing funding for the five-year budget, which has projected shortfalls at present. Predictable funding will be especially important for implementing this strategy because in the absence of commercial markets the programme will need to make binding commitments in advance to secure OPV production capacity and timely vaccine supply.

The VSG will continue assisting FMG in identifying and enabling alternative sources of financing for the Global OPV Stockpile in order to address stockpile financing challenges. This will be accomplished by sharing data and assisting in the development of proposals and other materials to support the FMG's fundraising efforts. Sustained and predictable financing will be critical to maintaining secure

appropriately sized stockpiles including to eventually trigger cessation and bOPV withdrawal and supporting long-term planning through to 2029 and into the post-certification period.

Remaining quantities of Sabin OPV2 may expire and be destroyed due to absence of uptake

With the transition to nOPV2 as the preferred vaccine for type 2 outbreak response, demand for Sabin OPV2 has, as of Q1 2026, reduced to zero. Residual Sabin OPV2 represents a legacy stock-management issue rather than an operational outbreak-response tool. The GPEI will need to balance prudent management of residual stocks with minimization of financial loss and expiry risk, while safeguarding uninterrupted type 2 outbreak response capacity through nOPV2 supply. This risk reflects the programme's transition away from Sabin OPV2 and underscores the need for careful management of legacy stock as the programme advances toward certification.

Long lead-times for OPV production

Managing production lead-times will remain critical to ensuring timely vaccine availability under the extended strategy period, particularly in the context of surge response requirements. Vaccine production has been disrupted in recent years given the biological nature of production, and it is expected that disruptions may happen in the future as well. To accommodate these challenges, the VSG extended supply lead times in its planning from 6 to 12 months to account for continued production delays and is currently operating with a buffer of 200 million doses at finished product and drug substance as part of the Global Stockpile.

IX. Looking Ahead: Key Decisions and Milestones

Several key decisions remain relevant during the next phase of this strategy. The VSG will present recommendations on these decisions close to each decision point, to ensure that the most current epidemiology and corresponding demand estimates are available to the SC. The anticipated key decisions during this period are described below and summarized in Table 4. These decisions are aligned with key programme milestones, including interruption, certification, and post-cessation transition points under the extended strategy to 2029

1. **Stockpiling Novel vs Sabin OPV1 and OPV3:** A key strategic decision will be required on whether to stockpile Sabin or novel OPV products for types 1 and 3, informed by a set of interrelated criteria including timelines for product availability, regulatory pathways, programme risk tolerance, and alignment with cessation timelines. In particular, the timing of availability of nOPV1 and nOPV3 relative to certification and bOPV withdrawal will be a critical determinant. Given current development timelines, it is anticipated that novel OPV1 and OPV3 may not be available prior to cessation, which would necessitate an interim approach based on stockpiling Sabin OPV1 and OPV3 to ensure preparedness for the post-cessation period. This approach would be complemented by a planned transition to novel OPVs once available, taking into account updated evidence on product performance, supply availability, and programmatic considerations. The VSG will further evaluate these options and associated trade-offs and present a recommendation to the Strategy Committee closer to the relevant decision point.
2. **Store or destroy Sabin mOPV2 post-2027:** This decision reflects broader programme considerations regarding the management of legacy Sabin OPV2 stocks as reliance shifts fully to nOPV2. A current manufacturer has expressed its present intent to store Sabin mOPV2 until the end of 2027, despite expiry dates extending beyond that timepoint. A decision will need to be taken in 2026 on whether to seek another extension of the storage agreement, seek another storage solution, or request the manufacturer to destroy the doses on hand. Any decision in this regard would also be relevant for the continued maintenance of Sabin mOPV2 drug substance.

Year	Area	Decision / Milestone	Dependency / Trigger
2026	OPV1/3	Decision: Sabin vs novel OPV1/3	Product availability; regulatory pathway
2026	OPV1/3	Decision: initiate tendering	Lead times; certification timeline
2026	Financing	SC decision on financing approach	SPW funding; SC approval
2026	OPV2	Decision: Sabin OPV2 storage vs destruction	Full transition to nOPV2; nOPV2 stock status
2026–2029	OPV2	Ongoing demand forecasting and supply planning	Epidemiology; outbreak response

2026–2029	OPV2	Periodic buffer level reviews	Demand forecasts; risk tolerance
2027	Programme	WPV1 interruption / certification milestone	Epidemiology; programme performance
2027–2028	OPV1/3	Procurement and production	Supplier capacity; contracts
2027–2028	OPV1/3	Stockpile build-up (bulk and finished doses)	Production lead times
2028	OPV1/3	Potential availability of nOPV1/3	Clinical development; EUL/PQ
2028–2029	OPV1/3	Decision: transition to novel OPVs	Product availability; performance data
2028–2029	Programme	cVDPV2 elimination / certification milestone	Epidemiology; outbreak control
2029	OPV2	Post-certification OPV2 stockpile established	Certification status; risk tolerance
2028–2029	OPV1/3	Stockpile readiness for bOPV cessation	Certification; SAGE decision
2026–2029	Cross-cutting	Annual review of supply and stockpile strategy	Updated modelling; epidemiology

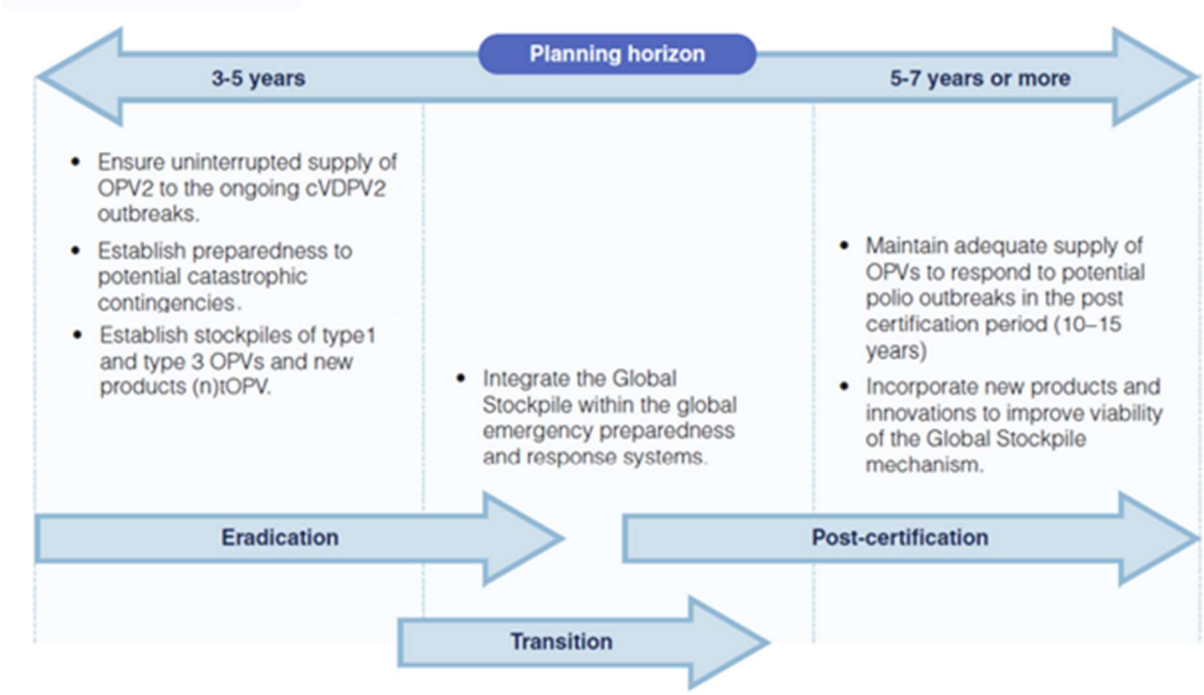
TABLE 4: GLOBAL OPV STOCKPILE 2026-2029 STRATEGY DECISIONS AND MILESTONES

Gender

In terms of gender balance, OPV supply chain management is relatively well positioned. According to recent Gartner surveys, women make up approximately 40% of the global supply chain workforce, but only around 30% of management positions. When responding to outbreaks, GPEI's cold chain logistics and vaccine management team collaborates with MoHs and other local partners. GPEI seeks to provide equal opportunities to male and female candidates when filling vaccine management positions as part of this collaboration.

GPEI does not discriminate against any gender in terms of training opportunities, and it makes concerted efforts to attract female-owned businesses in both online and face-to-face training programmes.

Appendix 1: Global OPV Stockpile planning horizon and objectives



Appendix 2: Detail on OPV2 Demand Estimate Scenarios

1. Overview

The OPV2 demand forecast supporting the Global OPV Stockpile Strategy is based on a dynamic epidemiological cohort model developed in partnership with LSHTM and first presented to the GPEI Strategy Committee in January 2022. Since then, the model has undergone structured review and recalibration exercises, including technical updates in May 2024 and October/November 2025. These revisions reflect evolving epidemiology, updated strategic guidance under the GPEI Strategy Extension to 2029, new evidence on immunity profiles, and actual vaccine deployment patterns.

The forecast is therefore not static. It is periodically updated to incorporate new programmatic, epidemiological and immunity inputs and to ensure that stockpile replenishment planning remains aligned with real-world outbreak response performance.

2. Model Framework

The OPV2 demand forecast is derived from a long-term cohort model of children across districts in the WHO African (AFR) and Eastern Mediterranean (EMR) regions. The model simulates poliovirus type 2 (PV2) susceptibility over time, accounting for aging into and out of susceptible cohorts and the accumulation of immunity through vaccination.

Population immunity is modelled as a function of routine immunization (RI) coverage and supplementary immunization activities (SIAs). The model iteratively simulates outbreaks and new emergences, incorporating uncertainty through repeated stochastic runs. Demand outputs are derived from the scope and scale of outbreak response activities required under defined response scenarios.

Forecasts extend through 2030, consistent with the extended certification timeline for elimination of cVDPV2 by end-2029.

3. Scenario Structure

Two principal strategic scenarios are modelled.

Scenario A1 assumes reactive outbreak response only, without widescale preventive use of nOPV2. This generates lower overall dose demand.

Scenario A2 incorporates both outbreak response and preventive or widescale use of nOPV2 in high-risk settings. It assumes a small increase in emergences associated with broader OPV2 exposure and therefore produces higher overall demand estimates.

Following the October/November 2025 review, Scenario A2 is considered the most operationally relevant planning scenario, reflecting the programme’s intensified response posture in priority geographies. The model does not explicitly simulate elimination probability but estimates vaccine requirements under plausible outbreak trajectories and response strategies.

4. Updated Immunity Assumptions (2024-2025)

A significant update incorporated during the 2024 and 2025 review cycles is the explicit inclusion of IPV-derived immunity in the population immunity profile.

IPV1 has been in use since 2016, and SAGE recommended IPV2 introduction in 2022. IPV-driven immunity is projected to increase across AFR and EMR through 2030. Regional immunity estimates are derived from national coverage data aggregated with observed variability.

Inclusion of IPV results in higher baseline immunity against paralysis and moderately fewer projected emergences compared with earlier OPV-only assumptions. The overall impact on projected OPV2 demand is modest but directionally important. No IPV catch-up campaigns are explicitly incorporated into the base forecast.

5. Phased Elimination Approach

The October/November 2025 model update incorporated the programme's phased approach to cVDPV2 elimination, as outlined in the 2026 Global Action Plan. This approach sequences intensified response by region:

- Southern and Central Africa: target interruption by end-2026
- Horn of Africa: target interruption by end-2027
- West and North Africa (including Lake Chad Basin): target interruption by mid-2028

The model reflects this phasing by adjusting assumed vaccination intensity and timing across regions. While it does not generate geographically explicit subnational outputs, it incorporates the temporal sequencing logic into aggregate demand projections. Limited SIAs are assumed in regions prior to entering their elimination phase, consistent with operational planning assumptions.

6. Emergence Risk Assumptions

The model assumes that the risk of vaccine-derived emergence associated with nOPV2 is approximately 20% of the risk historically observed with Sabin mOPV2. No hard susceptibility ceiling is imposed. Demand projections incorporate stochastic variability in both emergence and outbreak scale.

Certain operational complexities are not explicitly modelled, including geographically explicit spillover management, co-administration effects, or subnational campaign modality variation. These are captured indirectly through scenario-based response intensity assumptions rather than through mechanistic spatial modelling.

7. Translation from Epidemiological Outputs to Vaccine Demand

Model outputs are translated into vaccine demand using a structured planning approach. The 90th percentile of simulated demand distributions is typically used to maintain a low tolerance for stockouts. Wastage assumptions reflect operational experience. Historically, an annual safeguard buffer of 150 million doses was included to hedge against underestimation.

During the 2025 review cycle, the 150 million safeguard was excluded from the near-term 2025 forecast, as actual usage was closely aligned with projections and the year was nearing completion. Future inclusion of safeguard buffers will depend on epidemiological trajectory and risk tolerance.

In addition to annual planning volumes, the forecast incorporates a strategic bulk buffer of approximately one billion doses to support post-certification preparedness and catastrophic contingency planning.

nOPV2	2026	2027	2028	2029	TOTAL
Model	484	439	417	381	**1,721**

Wastage	87	79	75	69	**310**
Safeguard	150	150	150	-	**450**
Total (finish)	721	668	642	450	**2,481**
SPW (bulk)	-	-	-	250	**250**
Total (finish & bulk)	**721**	**668**	**642**	**700**	**2,731**

TABLE 5: GLOBAL NOPV2 STOCKPILE: SUPPLY PLAN FOR 2026-2029 (IN MILLIONS OF DOSES).

8. Comparison to Actual Deployment (2022-2025)

Model projections are periodically compared to actual nOPV2 doses released and children vaccinated. The 2022 forecast fell within expected ranges of actual use. In 2023 and 2024, actual vaccination volumes exceeded earlier forecasts, reflecting broader response scope in consequential geographies and operational decisions to intensify outbreak response. These deviations prompted reassessment of model assumptions, including outbreak closure rates and emergence dynamics.

Following recalibration in 2025, forecast outputs are closely aligned with observed deployment patterns. Stockpile replenishment decisions have therefore been informed by both forward projections and retrospective validation against real-world data.

9. Production and Forward Supply

Production planning has evolved alongside demand forecasting. The transition from single-supplier reliance to a dual-supplier base has strengthened manufacturing resilience following WHO prequalification of nOPV2. Actual production volumes to date and projected 2026 output have been assessed against upper-bound demand scenarios to ensure alignment between manufacturing commitments and epidemiological risk.

Forward planning is framed within the extended certification timeline to end-2029 and incorporates strategic bulk buffers for post-certification preparedness.

10. Governance and Update Mechanism

The OPV2 demand forecast is maintained as a living model. It was initially developed in 2021-2022, followed by assumption review in 2023-2024 and review in October/November 2025. Going forward, the model will be reviewed annually, or earlier if triggered by significant epidemiological shifts, changes in outbreak response policy, adjustments to IPV coverage assumptions, or supply disruptions.

Conclusion

The OPV2 demand forecast underpinning the Global OPV Stockpile Strategy is based on a calibrated epidemiological cohort model integrating routine and supplementary immunization dynamics, updated IPV-derived immunity, phased elimination sequencing, and stochastic outbreak simulation. The model has been iteratively refined through structured engagement with the modelling team and validated against real-world deployment data. Demand planning remains dynamic and aligned with the extended GPEI Strategy to 2029, balancing risk tolerance for stockouts with financial, manufacturing, and containment considerations.