Implementation of nOPV2 for cVDPV2 Outbreak Response:

Technical Guidance for Countries

Contents

Purpose and Goals

This presentation serves as a companion to the nOPV2 Vaccine Deployment Readiness Checklist and the technical guidance document for nOPV2 implementation, *Implementation of nOPV2 for cVDPV2 Outbreak Response: Technical Guidance for Countries*. These resources are available on the GPEI nOPV2 web page, http://polioeradication.org/nOPV2, under **Resources for Countries > Technical Information and Tools**

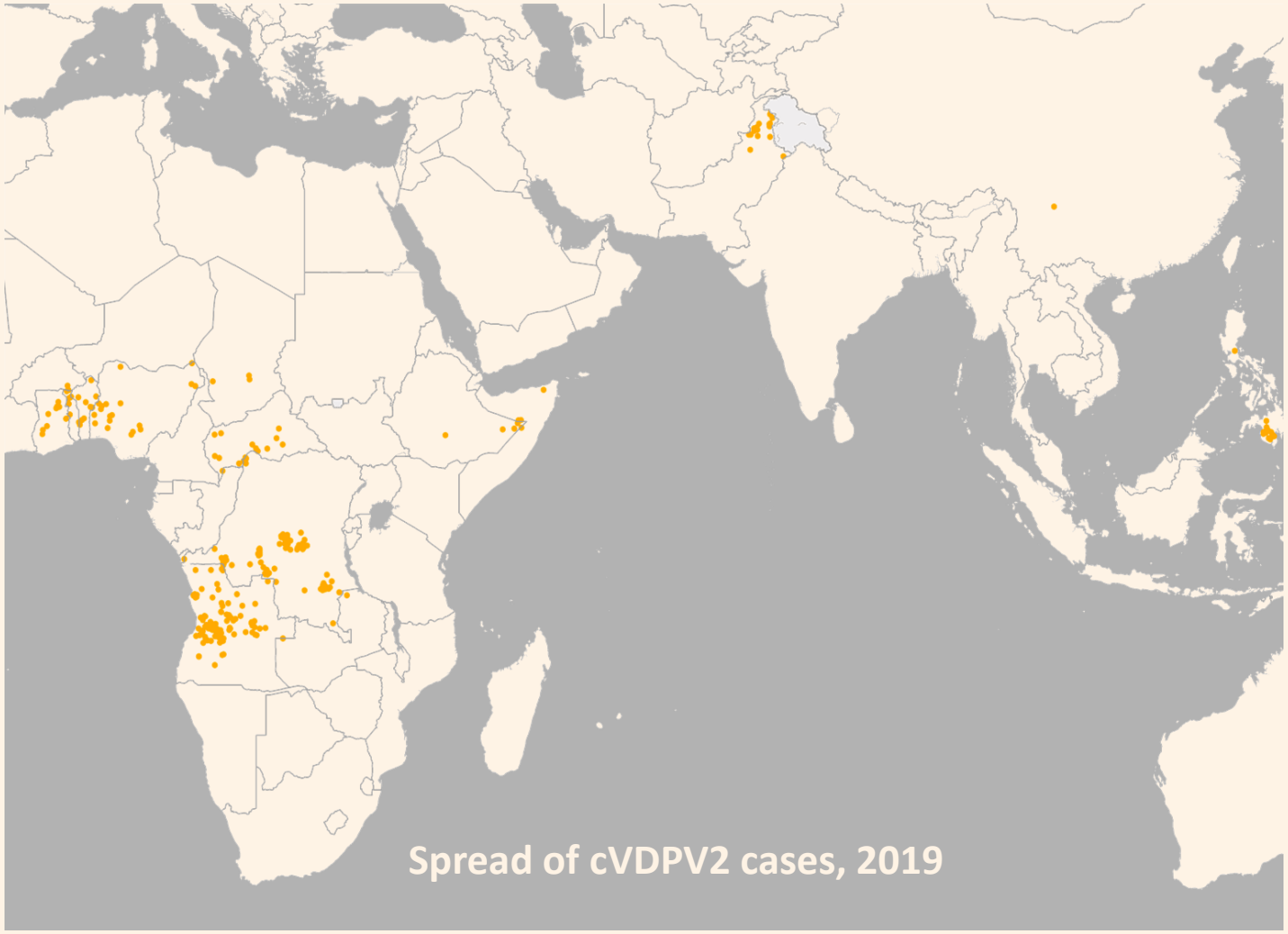
It aims to:

- Help national decision-makers understand the process for nOPV2 implementation and why it is necessary
- Facilitate discussions about the process and how nOPV2 could be implemented given the specific country context

Photo Credit: WHO / Rajiv Kumar

nOPV2: An Innovative Tool for cVDPV2 Outbreak Response

The Challenge of Circulating Vaccine-Derived Polio



Circulating vaccine-derived polioviruses (cVDPVs) occur when the weakened strain of the poliovirus contained in the oral polio vaccine (OPV) circulates among an under-immunized population for a long time, and genetically reverts to a form that causes paralysis.

Type 2 cVDPVs are the most prevalent, and their frequency and scope have increased in recent years. **This increase in cases has presented a major public health challenge—and a major challenge to eradication efforts.**

nOPV2: An Innovative Tool to Stop cVDPV2 Outbreaks

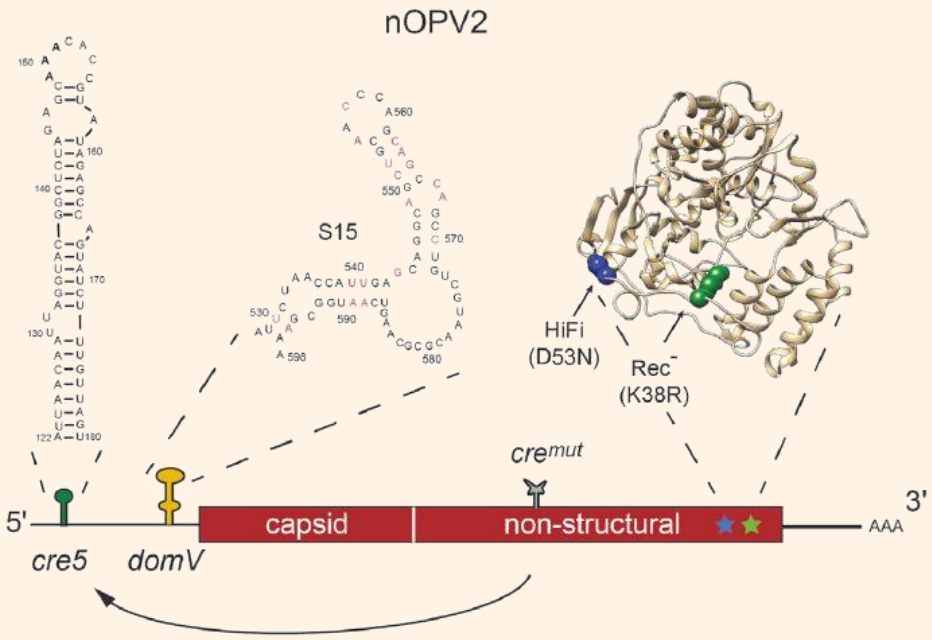
Addressing cVDPV2

The novel oral polio vaccine type 2 (nOPV2) is a new tool developed to better address the risk of type 2 circulating vaccine-derived poliovirus (cVDPV2).

A modification of mOPV2

nOPV2 is a modification of the existing type 2 monovalent OPV (mOPV2) that clinical trials have shown provides comparable protection against poliovirus while being more genetically stable and less likely to revert to a form that can cause paralysis in children who have not been sufficiently immunized.

nOPV2 Genome with modifications



Ming Te Yeh, Erika Bujaki, Patrick T. Dolan, Matthew Smith, Rahnuma Wahid, John Konz, Amy J. Weiner, Ananda S. Bandyopadhyay, Pierre Van Damme, Ilse De Coster, Hilde Revets Andrew Macadam, and Raul Andino. Engineering the Live-Attenuated Polio Vaccine to Prevent Reversion to Virulence. Cell Host & Microbe. 2020; 27(5):736–751.e8. doi:10.1016/j.chom.2020.04.003

Summary of Clinical Trial Findings

Conclusions from Preliminary Data in nOPV2 Clinical Trials

nOPV2 has a favorable general safety/reactogenicity profile, with no evidence of any increase in general safety risk compared with mOPV2

nOPV2 appears to induce lower or comparable shedding as compared to mOPV2

Data to date indicates that nOPV2 is as immunogenic as mOPV2

Data available support the view that nOPV2 is likely to have significantly lower risk of paralysis in humans vs. mOPV2

For further details, please consult the **Clinical summary for novel oral polio vaccine type 2 (nOPV2)** at http://polioeradication.org/wp-content/uploads/2020/05/Clinical-development-summary-nOPV2-20200521.pdf

Adapted from: Bandyopadhyay, AS. Summary of nOPV2 clinical data. SAGE presentation. Polio Session. 1 April 2020. Information courtesy: Clinical Trial Sponsors (UW, FIDEC); Bio Farma; PATH; US CDC; and development partners.

nOPV2: Technical Specifications

Indicated Use: to be used in cVDPV2 outbreak response only (like mOPV2). Guidance for deployment will be provided through updated GPEI Standard Operating Procedures

Presentation: 50-dose vials; liquid will be similar in colour to mOPV2. nOPV2 vials may also feature a VVM1*

Administration and Dosage: two drops, delivered orally

Safety Profile: nOPV2 is a modified version of mOPV2. Data to date indicate that the safety profile is similar to mOPV2, but with decreased risk of reverting to a form that could cause paralysis in areas with low immunization coverage

*Confirmation of the VVM that will be featured on nOPV2 vials and corresponding guidance from the GPEI on what this will mean in the field is forthcoming.

Photo credit: WHO / Jorgen Schytte

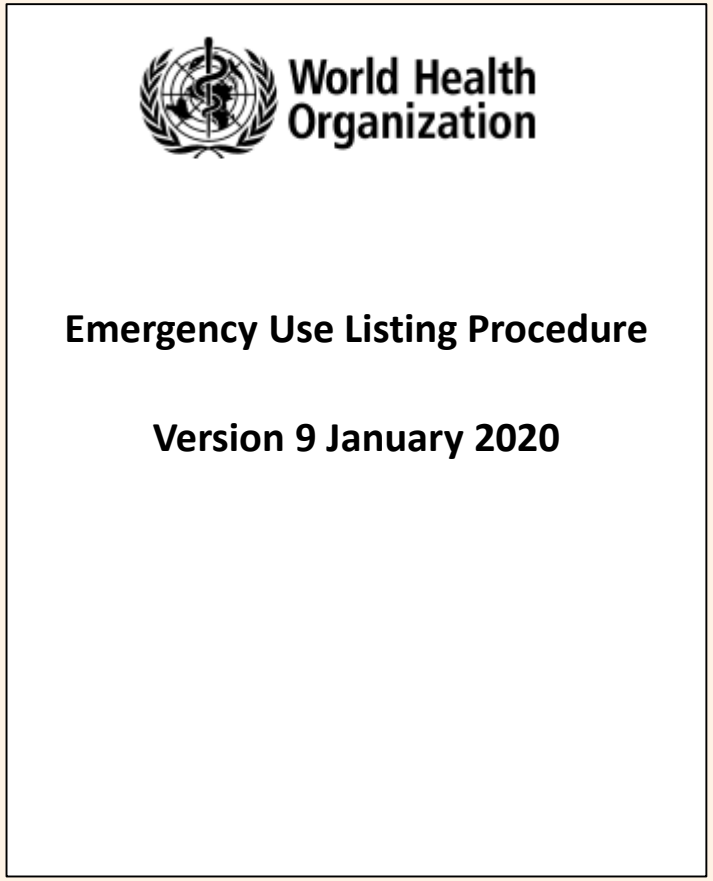
Plans for Global Rollout

Rapid Field Availability through the WHO Emergency Use Listing Procedure

Given the urgent need to stop cVDPV2 outbreaks and the promising phase I and II safety data on nOPV2, clinical development of nOPV2 is being accelerated under WHO's Emergency Use Listing (EUL) procedure to make the vaccine available as soon as possible

WHAT IS THE EUL?

The EUL involves careful and rigorous analysis of available data to enable early, targeted use of unlicensed products for a Public Health Emergency of International Concern (PHEIC) such as polio. nOPV2 could be the first vaccine to be approved through WHO EUL, and an initial recommendation for use of nOPV2 under an EUL could be issued as early as **late 2020**. Full licensure and WHO prequalification of the vaccine is not anticipated until 2022.



The EUL Procedure document can be downloaded at http://polioeradication.org/nOPV2

Rapid Field Availability through the WHO Emergency Use Listing Procedure

Special Requirements for Vaccine Use Under the EUL

Essential Use Criteria for the Initial Use Period: Because nOPV2 has not yet been used outside of a clinical trial setting, additional criteria must be in place **for the initial (i.e. first) uses of the vaccine under the EUL recommendation for use**. These criteria are called the Essential Use Criteria, and they will be in effect for approximately 3 months from first use of nOPV2 under EUL (likely to comprise 1-3 full outbreak responses).

Post-Deployment Monitoring Requirements: Enhanced monitoring of the vaccine is required while nOPV2 is used under EUL to assess safety surveillance, performance, quality complaints, and other relevant factors impacting the validity of the listing. These will apply for **the entire time that nOPV2 is used under an EUL recommendation for use.**

Essential Criteria for the Initial Use of nOPV2 in Outbreak Response

Endorsed in Principle by the Strategic Advisory Group of Experts on Immunization (SAGE)

- VDPV2 detection
- Capacity to acquire/distribute vaccine in a timely manner
- Capacity to respond to unanticipated findings
- Capacity for post-deployment surveillance (including safety, AFP and ES)
- Waiting period of 12 weeks after last mOPV2 use in area

Additional Considerations for nOPV2 Use in Outbreak Response

- A waiting period of 6 weeks after bOPV outbreak response campaigns (to minimize risk of recombination between nOPV2 and mOPV1/3)
- Vaccine acceptance
- Access or security issues

Specifics on Initial Use

- First uses under EUL: outbreak response with nOPV2 alone
- Ensure sufficient vaccine to conduct full required number of rounds with nOPV2
- IPV use for outbreak response may be considered subsequently, after the first two rounds of nOPV2

Process for Rollout Under an EUL Recommendation for Use

	Initial Use Period following the initial EUL Recommendation for Use	Final EUL Recommendations following the Initial Use Period	nOPV2 receives WHO Prequalification (End of EUL Recommendation and Listing Period)
Timing	The first three-months (approx.) following the first use of nOPV2 under an EUL recommendation for use (anticipated as early as late 2020)	nOPV2 will continue to be used under the EUL recommendation for approximately 12-24 months following the initial use period	To be determined, but not before 2022. Some necessary activities (e.g. studies) have been delayed due to COVID-19
Applicable Criteria	• Essential Criteria for Initial Use • Post-deployment monitoring (PDM) requirements (note that these may evolve over time, based on data and learnings)	Post-deployment monitoring (PDM) requirements (note that these may evolve over time, based on data and learnings)	Standard conditions for vaccine use, informed by lessons learned from the implementation of nOPV2 under the EUL recommendation for use

Process for Country Readiness and Implementation

Which countries should prepare for nOPV2 use?

All countries identified as being at high risk of VDPV2 transmission should begin preparing for nOPV2 use now, in order to be ready to deploy once the initial EUL recommendation is made

High-Risk Countries

- Countries with current VDPV2 detections in AFP or ES surveillance
- Countries that have had a cVDPV2 detection in the past 6-12 months
- Countries that border countries that meet the above criteria
- Other countries in regions where cVDPV2 has been detected that do not meet these criteria but would like to be prepared for a possible VDPV2 detection and subsequent response with nOPV2 may also wish to start preparations

The GPEI position paper that assesses and addresses country risk can be downloaded at http://polioeradication.org/nOPV2

The nOPV2 Country Readiness Process

1. Review the nOPV2 Vaccine Deployment Readiness Checklist and Technical Guidance Document
2. Convene national immunization partners to review all requirements and consider nOPV2 use
3. Decide if interested in preparing for nOPV2 use. **If yes:**
4. Document the decision (e.g., in the minutes of a NITAG meeting)
5. Complete a draft of the nOPV2 Vaccine Deployment Readiness Checklist
6. Submit the First Draft of the Readiness Checklist to the GPEI to confirm interest in using nOPV2 and indicate where support is needed
7. On a regular (monthly) basis, share updates of the Readiness Checklist to track progress and identify any needs for additional support
8. Share a finalized Readiness Checklist to confirm country readiness ahead of nOPV2 implementation

The nOPV2 Country Readiness Process

Why a Country Readiness Process?

While many of the activities that countries will carry out to implement nOPV2 campaigns are the same as those required to implement an mOPV2 campaign, **some additional activities are necessary** because of:

- The differences in presentation between nOPV2 and mOPV2 (i.e. vial size)
- The need to meet the requirements for using the vaccine under an EUL recommendation for use
- Potential communication challenges due to nOPV2 being a new vaccine used under EUL

The Readiness Checklist

The Readiness Checklist is a tool created by the GPEI to:

- **Summarize the requirements for nOPV2 use under EUL** + the additional requirements that will apply during the Initial Use Period under the EUL
- **Help identify gaps and monitor progress** towards nOPV2 readiness
- Serve as part of the **report for assessment of a country's readiness** for nOPV2 for a vaccination response

The Readiness Checklist Excel Tool and Technical Guidance document can be downloaded at http://polioeradication.org/nOPV2

The Readiness Checklist

Category	Reference Number	Requirement	Requirements for using nOPV2 under EUL *All countries to complete*	Additional Requirements for initial use period *Only required during the initial use period*	Date of Completion	Status update for incomplete items (include date of update)
Coordination	A1	A national coordinating mechanism/body has been created and technical committees have been established to oversee preparations for nOPV2 across the following critical areas: 1) cold chain, logistics and vaccine management; 2) safety/causality; 3) advocacy, communications and social mobilization; 4) surveillance; and 5) laboratory	☐			
nOPV2 Approvals	B1	An official national decision to implement nOPV2 for outbreak response is confirmed and documented by national immunization partners	☐			
	B2	Approval for the *importation* of nOPV2 has been secured from the relevant national authorities and documented for reference	☐			
	B3	Approval for the *use* of nOPV2 has been secured from relevant national authorities and documented for reference	☐			

Read First | Checklist | CCL&VM | Surveillance | Safety | ACSM

The Checklist Identifies:

- 20 Requirements for nOPV2 use under EUL
- 7 Additional Requirements for countries using nOPV2 in the initial use period

Tabs along the bottom provide additional info, including:

- How to use the checklist
- Considerations for: 1) CCL/VM, 2) Surveillance (including labs), 3) Safety, 4) Advocacy, Communications and Social Mobilization (ACSM)

Critical Step: National decision and approvals for nOPV2 use

Category	Reference Number	Requirement	Requirements for using nOPV2 under EUL *All countries to complete*	Additional Requirements for initial use period *Only required during the initial use period*	Date of Completion	Status update for incomplete items (include date of update)
nOPV2 Approvals	B1	An official national decision to implement nOPV2 for outbreak response is confirmed and documented by national immunization partners	☐			
	B2	Approval for the *importation* of nOPV2 has been secured from the relevant national authorities and documented for reference	☐			
	B3	Approval for the *use* of nOPV2 has been secured from relevant national authorities and documented for reference	☐			

The items in Category B (Country nOPV2 approvals) are a critical step in preparing for nOPV2 use in your country and should be started as soon as possible.

These include:

- NITAG or other immunization advisory group (ICC, EOC, ad hoc group) decision to proceed
- Expedited approval for the import and use of the vaccine (target timeline: within 30 days)

See also: World Health Organization Executive Board resolution EB146/11. 146th session, 7 February 2020 (https://apps.who.int/gb/ebwha/pdf_files/EB146/B146(11)-en.pdf)

Timing and Deadlines: Readiness Tracking and Reporting

- Because the timing of future country-level outbreak events is unknown, there is no calendar-based due date for the checklist. Instead, **countries should begin completing items on the checklist as soon as they have decided to start preparing for nOPV2 use and update the checklist as they continue their preparations**.

- **Country nOPV2 focal points are asked to submit the Readiness Checklist to their WHO and UNICEF regional offices** as indicated on the next slide, as part of an overall readiness tracking and reporting process. The goal of this process is to ensure close communication with GPEI partners about country readiness status and needs throughout the process.

Photo credit: WHO / Hans Everts

Timing and Deadlines: Readiness Tracking and Reporting

	Activity & Timing	Items to Submit
1	**Submit a First Draft of the Readiness Checklist** to the GPEI to confirm interest in using nOPV2 and indicate where support is needed	• Readiness Checklist • Evidence of the country's decision to implement nOPV2 (e.g. minutes of a NITAG meeting, if available)
2	**On a regular (monthly) basis, share updates of the Readiness Checklist** to track progress and identify any needs for additional support	• Updated Readiness Checklist • Other documentation as it becomes available
3	**Submit the Final Readiness Report once the Readiness Checklist is complete, or after outbreak detection and submission of a request for nOPV2 (whichever comes first)**	• Updated Readiness Checklist • Evidence of the country's decision to implement nOPV2, if not submitted previously • Evidence of country approval of the importation and use of nOPV2

When An Outbreak Is Detected

When an outbreak is detected, a country that has completed the preparation process may wish to use nOPV2 during the outbreak. nOPV2 will be released through a two-phase process:

1) Assessment of country readiness

- Country readiness is assessed by the GPEI. The primary factors that will be considered will include country interest in using nOPV2, country-level regulatory approval for the importation and use of nOPV2, and the completion and evaluation of the Readiness Report.

2) Release of the vaccine and establishment of any additional specifications for outbreak response (e.g. target age)

- Factors will include available supply, country-level and regional poliovirus epidemiology, and other potential considerations relevant to the specific context of the outbreak.

The country and the GPEI will work together throughout this process.

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Final Notes

Specific Guidance for the Use of nOPV2 in Outbreak Response

The procedures necessary to plan for and implement a high-quality nOPV2 outbreak response will be detailed the GPEI Standard Operating Procedures (SOPs) for Outbreak Response. The SOPs will be updated to provide specific details and guidance that will be important for nOPV2 deployment.

After Country Readiness Is Achieved and nOPV2 Has Been Used in Outbreak Response

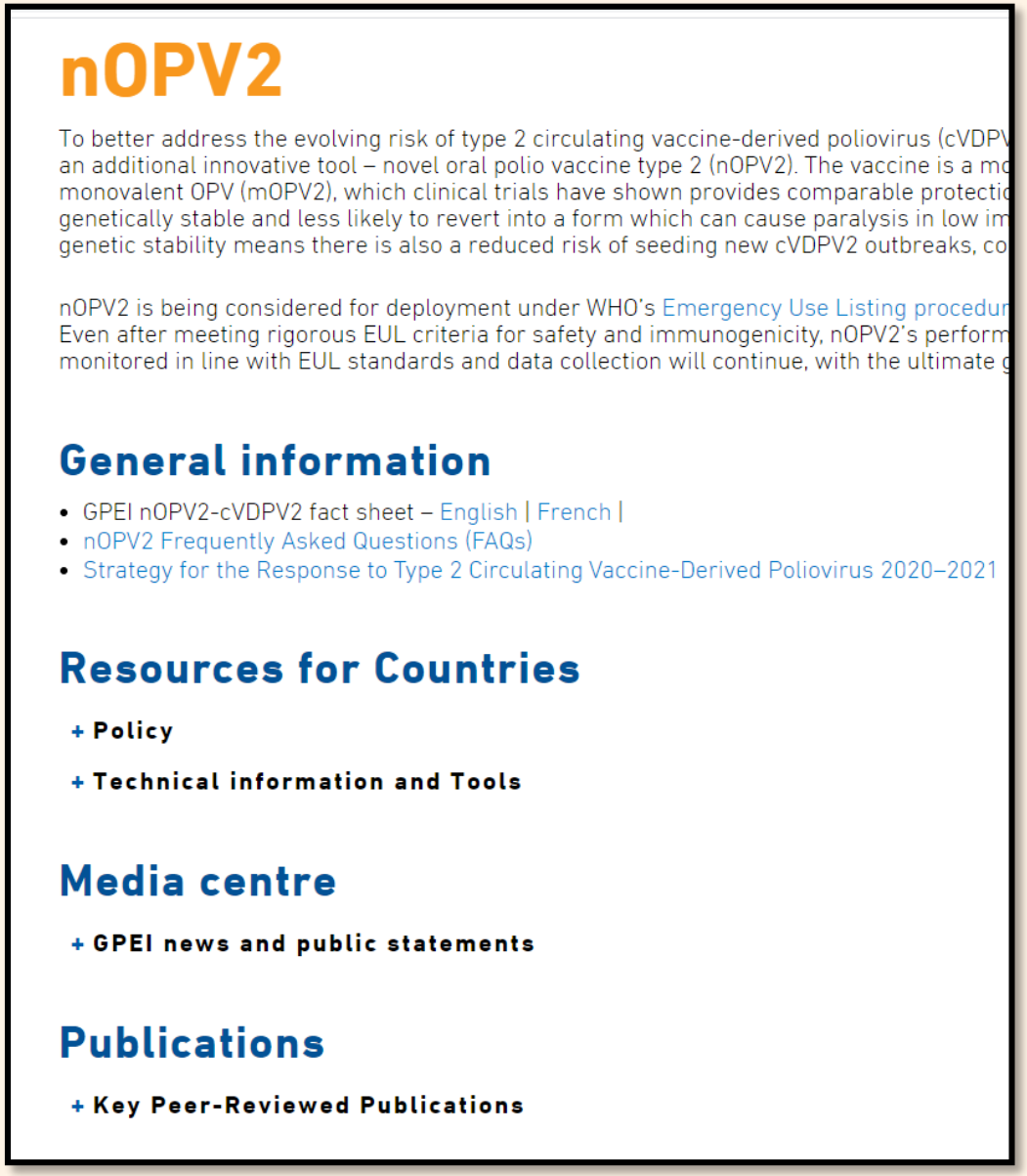
Once the process is complete, the country is prepared to carry out cVDPV2 outbreak responses with nOPV2 under the EUL and will not need to complete the readiness process again.

Photo credit: WHO / Asad Zaidi

Key Resources on nOPV2

An up-to-date list of relevant nOPV2 materials is maintained on the **nOPV2 web page of the GPEI website,** http://polioeradication.org/nOPV2.

New documents and tools for nOPV2 implementation continue to be developed and will be posted to the web page as they become available.



nOPV2

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genetically stable and less likely to revert into a form which can cause paralysis in low im
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nOPV2 is being considered for deployment under WHO's Emergency Use Listing procedur
Even after meeting rigorous EUL criteria for safety and immunogenicity, nOPV2's perform
monitored in line with EUL standards and data collection will continue, with the ultimate g

General information

- GPEI nOPV2-cVDPV2 fact sheet – English | French |
- nOPV2 Frequently Asked Questions (FAQs)
- Strategy for the Response to Type 2 Circulating Vaccine-Derived Poliovirus 2020–2021

Resources for Countries

+ **Policy**

+ **Technical information and Tools**

Media centre

+ **GPEI news and public statements**

Publications

+ **Key Peer-Reviewed Publications**

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THANK YOU

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World Health Organization