ROYAL COLLEGE OF PHYSICIANS OF IRELAND

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cc Prof Ellen Crushell, Deputy CMO

Ms Richael Duffy, Head of Unit

Ms Pauline Brady, CMO Office

**RE: Catch-up polio vaccination for people coming from countries using oral polio vaccine**

Dear Professor Horgan,

The National Immunisation Advisory Committee (NIAC) has reviewed the epidemiology of polio and the World Health Organization's (WHO's) recommendations for polio vaccination and makes recommendations for catch-up polio vaccination for people coming to Ireland from countries using oral polio vaccine. (see Appendix 1)

## NIAC recommendations for polio vaccination for those coming to Ireland from countries using oral polio vaccine

| |
|---|
| Trivalent oral polio vaccine (tOPV) protects against poliovirus types 1, 2 and 3.<br>Bivalent oral polio vaccine (bOPV) protects against poliovirus types 1 and 3. |

Those coming to Ireland, from countries using oral polio vaccine (OPV), **vaccinated since April 2016**, will not have received tOPV. According to WHO guidance they should have received three doses of bOPV and two doses of inactivated poliovirus (IPV) containing vaccines.

- If they meet these WHO requirements then only a single booster dose of an IPV containing vaccine is required, at age 4-5 years in Junior Infants or at least six months after their last polio vaccine if older than this (DTaP/IPV if aged <10 years and Tdap/IPV or Td/IPV if aged ≥10 years).
- If they have unknown or incomplete polio vaccination status:
    - if they already had received three doses of bOPV they should receive the missed one or two IPV doses as recommended by WHO. A booster dose of an IPV containing

vaccine is recommended at age 4-5 years in Junior Infants or at least six months after their final catch-up polio vaccine.

or

- if they have received two doses or less (including none or unknown) of bOPV, they should receive three doses of IPV containing vaccine (DTaP/Hib/HepB/IPV or DTaP/IPV if aged <10 years and Tdap/IPV or Td/IPV if aged ≥10 years). There should be a minimum interval of four weeks between IPV doses. A booster dose of an IPV containing vaccine is recommended at least six months after their third IPV vaccine.

Those coming to Ireland, from countries using OPV, **vaccinated prior to April 2016**, should have received three doses of tOPV.

- If they have received three doses of tOPV then a single booster dose of an IPV containing vaccine is required (DTaP/IPV if aged <10 years and Tdap/IPV or Td/IPV if aged ≥10 years).
- If they have unknown or incomplete polio vaccination status, they should start or complete a three dose IPV schedule (depending on how many tOPV already received). There should be a minimum interval of four weeks between IPV doses. A booster dose of IPV containing vaccine should be given at least six months after completion of the primary vaccination series (DTaP/IPV if aged <10 years and Tdap/IPV or Td/IPV if aged ≥10 years).

### NIAC recommendations for fully immunised persons at increased risk of exposure

Fully vaccinated persons aged 10 years and over at increased risk of exposure to poliovirus should be given a single dose of Tdap/IPV.

At-risk persons include the following:

- Persons travelling to or receiving travellers from, areas where poliovirus is known or suspected to be circulating.
- Health care workers who have close contact with patients who might be excreting wild type or vaccine type poliovirus.
- People who come in close contact with those who may be excreting poliovirus (e.g., people working with refugees, or the military and people on humanitarian missions in countries or areas where poliomyelitis is epidemic or endemic).
- Laboratory workers handling specimens that may contain poliovirus.
- Family or close contacts of internationally adopted infants who may have been or will be vaccinated with OPV.

In reviewing the evidence to support these recommendations, NIAC noted the recent European Centre for Disease Prevention and Control (ECDC) risk assessment. The ECDC advises that circulation of cVDPV2 poses a possible threat to public health within the EU/EEA and should be closely monitored.

The ECDC recommends that member countries maintain high vaccination coverage, strengthen environmental and clinical surveillance and be vigilant to potential outbreaks of polio.

As noted in NIAC's 2022 recommendations regarding polio re-emergence, a critical component of the response is prioritising increasing the uptake of polio containing vaccines in the primary childhood and the school immunisation programmes aiming for vaccination uptake rates of 95% in each.

Kind regards,

**Dr Edina Moylett**
**NIAC Chair**

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# Appendix 1

## Introduction

Following the emergence of COVID-19 the Global Polio Eradication Initiative (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.[1] The aim is to make up lost ground against polio during the COVID-19 pandemic, while continuing to leverage the programme's infrastructure to support fragile health systems. The goals of the new strategy for 2022-2026 are: *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.[2]

## Epidemiology of Poliomyelitis virus

There are three types of wild poliomyelitis virus (WPV), Type 1, Type 2 and Type 3. Following the launch of the Global Polio Eradication Initiative in 1998, Type 2 wild poliovirus was declared eradicated in September 2015. The last detection was in India, October 1999. Type 3 wild poliovirus was declared eradicated in October 2019. It was last detected in Nigeria, November 2012.[2,3] Type 1 wild poliovirus is currently endemic in two countries Afghanistan and Pakistan and global cases from 2018 to now are set out in Table 1 below. The last case of polio in Ireland was notified in 1984.[4] The last case in WHO European Region was reported in 1998.[5]

**Table 1 Global wild Acute Flaccid Paralysis 2018-2025 Wild Virus Type 1 Confirmed Cases**

| | Full year total | | | | | | | 01 Jan-11 Mar '25[1] | | Date of most |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2024 | 2025 | recent virus |
| **Afghanistan** | 21 | 29 | 56 | 4 | 2 | 6 | 25 | 2 | 1 | 27/01/2025 |
| **Pakistan** | 12 | 147 | 84 | 1 | 20 | 6 | 74 | 2 | 6 | 10/02/2025 |
| **Islamic Republic of Iran** | | | | | | | | | | |
| **Malawi** | | | | 1 | | | | | | 19/11/2021 |
| **Mozambique** | | | | | 8 | | | | | 10/08/2022 |
| **Total (Type 1)** | **33** | **176** | **140** | **6** | **30** | **12** | **99** | **4** | **7** | |

Source: WHO https://polioeradication.org/wild-poliovirus-count/ (10/03/2025)
[1] Data reported to WHO HQ week 11 of 2025

## Polio vaccines

*Inactivated polio vaccine (IPV)*

Inactivated polio vaccine (IPV) is a trivalent vaccine which protects against all three wild types of paralytic polio. As it is a non-live virus, there is no risk of replication or reversion to virulence i.e., no risk of causing vaccine-derived poliovirus (VDPV). It must be given by injection and while very effective

in preventing the serious consequences of polio, it does not always stop gastrointestinal infection and is proven ineffective in stopping transmission.[4] IPV induces limited intestinal mucosal immunity in previously unvaccinated individuals.[2]

*Oral poliovirus vaccine (OPV)*

OPV is a very safe, easily administered vaccine that has contributed very significantly to the global near eradication of polio. The attenuated virus replicates in the gut and is shed in stool. Up to 90% of OPV vaccinated infants excrete poliovirus for some weeks following vaccination. Transmission of the excreted virus to non-immune household contacts is common and can also induce protection.[4]

Oral poliovirus vaccines (OPVs) contain attenuated or weakened version of one of the following:[2]

- One poliovirus type (monovalent OPV types 1, 2 or 3 [mOPV1 or mOPV2 or mOPV3]) [licenced 1961 & 2005].
- Two poliovirus types (bivalent OPV types 1 & 3) [licenced 2009].
- All three poliovirus types (trivalent OPV types 1, 2 & 3) [licenced 1963].
- Novel oral polio virus (nOPV) (modified Sabin OPV strains with enhanced genetic stability). In November 2020, type 2 nOPV (nOPV2) was recommended under WHO Emergency Use Listing (EUL) for outbreak response to cVDPV2s. nOPV serotypes 1 and 3 are under clinical development; phase 1 trials began in early 2022.[2]

*Adverse events associated with OPV*

Two rare but serious adverse events are associated with OPV: vaccine associated paralytic polio (VAPP), which may develop in OPV recipients or their immediate contacts, and vaccine derived polio virus (VDPVs). VAPP is an adverse event following exposure to OPV. VAPP occurs among OPV recipients and their contacts and has been recognized since the licensure and widespread use of OPV in the early 1960s.[2]

VDPVs, by contrast, are polioviruses (arising from live-attenuated poliovirus from oral polio vaccine) that have atypical genetic properties indicative of prolonged replication or circulation during which time they acquire genetic mutations in the 'VP1' regions, in particular within the attenuation sites, and diverge genetically and become classified as VDPV which may regain the ability to cause paralysis.[2,6]

**Table 2 Circulating Vaccine Derived Polio Virus (cVDPV) 2023 and 2024(WHO Polio IHR, 2024)***

| | **2023** | **2024*** |
|---|---|---|
| **cVDPV1** | 134 [106 DR Congo;24 in Madagascar; 4 in Mozambique] | 8 [7 in DR Congo; 1 in Mozambique] |
| **cVDPV2** | 395 [226 (43%) in DR Congo] | 182 [85 (46%) in Nigeria] |
| **cVDPV Total** | **529** | **190** |

*2024 data is provisional to December 2024

*Detections of VDPVs in in sewage in the European Union/European Economic Area (EU/EEA) and United Kingdom (UK)*

Between September and December 2024, four countries in the EU/EEA (Finland, Germany, Poland, Spain) and the United Kingdom reported detections of circulating vaccine-derived poliovirus type 2 (cVDPV2) in sewage samples. This is the first time cVDPV2 has been detected in EU/EEA countries from environmental surveillance.[5] Ireland has been conducting sewage surveillance for VDPV2 since 2023 but has not reported any detections to date.

No human cases of polio related to these detections of cVDPV2 have been reported in EU/EEA or the UK to date.[4]

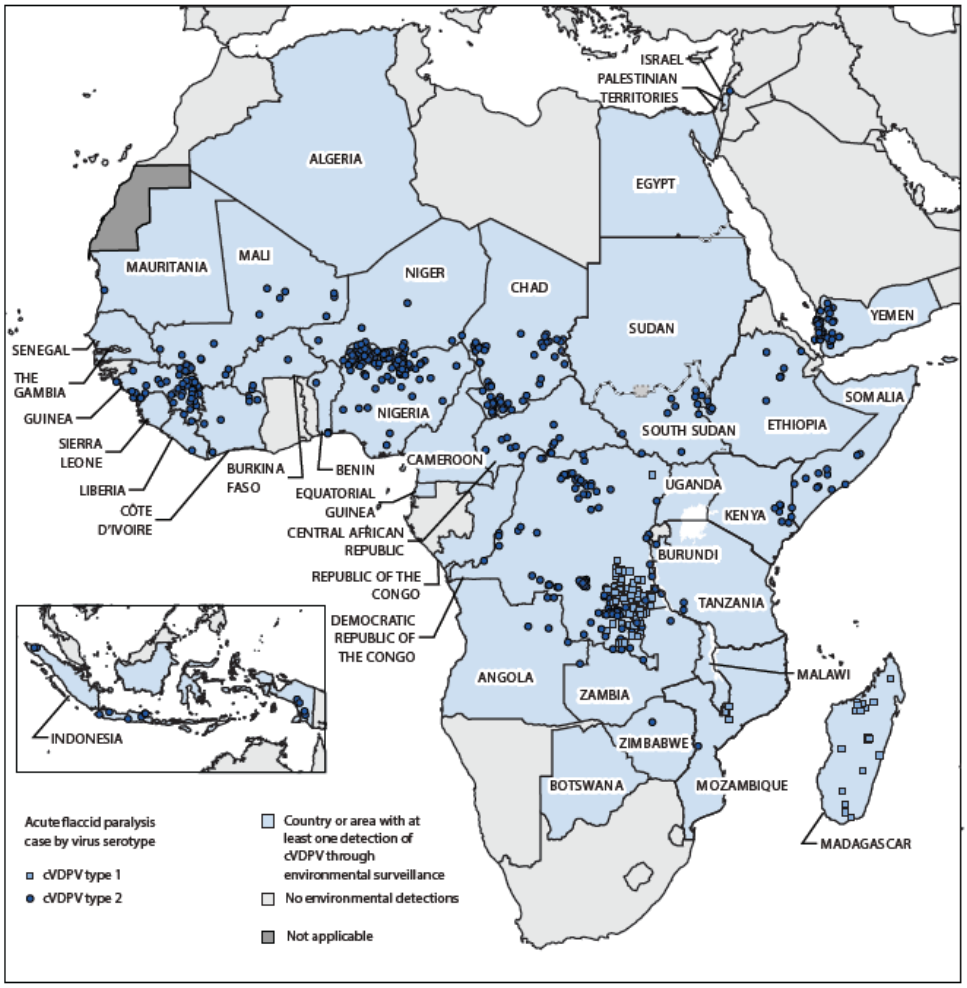
The European Centre for Disease Prevention and Control (ECDC) advises that circulation of cVDPV2 poses a possible threat to public health within the EU/EEA and should be closely monitored, as they can lead to outbreaks in unvaccinated individuals. The ECDC recommends that member countries maintain high vaccination coverage, strengthen environmental and clinical surveillance and be vigilant to potential outbreaks of polio.[5]

## Switch to bivalent OPV (types 1 and 3)

In 2016, there was a globally synchronized "switch" to replace trivalent oral poliovirus vaccine (tOPV) with bivalent oral poliovirus vaccine (bOPV) containing only types 1 and 3 as recommended by the World Health Organization (WHO). The switch took place in April 2016. This switch was due to the longstanding absence of WPV2 and the burden of paralytic cases caused by both type 2 vaccine-associated paralytic poliomyelitis (VAPP) and circulating vaccine-derived poliovirus type 2 (cVDPV2).[2]

However, since the switch to bOPV in 2016, cVDPV2 outbreaks have increased in number, cases for 2023 and 2024 are set out in Table 2 above.[7] Figure 1 below displays global cases of circulating cVDPV1 and cVDPV2 from January 2023 to June 2024.[8]

**Figure 1: Countries and areas* reporting circulating vaccine-derived polio outbreaks (N=39) - worldwide January 2023-June 2024†, 8**




Abbreviation: cVDPV = circulating vaccine-derived poliovirus.
* Some boundaries might differ under World Health Organization mapping guidelines.
† Data as of September 18, 2024.

Inadequate outbreak response to new detections, delayed campaigns, and insufficient coverage with monovalent type 2 oral poliovirus vaccine (mOPV2) have contributed to widespread and persistent transmission of cVPDV2 in countries with initial outbreaks, importations into neighbouring regions and seeding of new cVDPV2 lineages.[2]

In 2016, in conjunction with the replacement of tOPV by bOPV, the WHO recommended that all countries using bOPV in the national immunisation programme, should include at least one dose of IPV in the vaccination schedule.[9] In 2022, WHO recommended that countries using bOPV should include two doses of IPV in their vaccination schedule to ensure coverage of Type 2 poliovirus.[2]

### WHO polio vaccination recommendations 2022[2]

- In **polio-endemic countries** and in countries at high risk for importation and subsequent spread of poliovirus, WHO recommends **a bOPV birth dose** (zero dose) followed by **the primary series of 3 bOPV doses and 2 IPV doses**. The **2 doses of IPV provide immunity against paralysis from type 2 poliovirus** and also **boost immunity against poliovirus types 1 and 3.**
- In countries with **high vaccination coverage** (e.g., 90-95%) and low importation risk (where neighbouring countries and/or countries that share substantial population movement have a similarly high coverage), **an IPV–bOPV sequential schedule** can be used when VAPP is a greater concern than the small loss of IPV immunogenicity due earlier administration. The initial administration of 2 doses of IPV should be followed by ≥2 doses of bOPV to ensure sufficient levels of protection in the intestinal mucosa as well as a decrease in the burden of VAPP.
- An **IPV-only schedule** may be considered in countries **in polio-free regions** with **a very low risk of importation** and sustained **high routine immunisation** coverage (**DTP3 >90%**). A primary 3-dose series of IPV administered beginning at 6 or 8 weeks of age, with a minimum four week interval between doses, is recommended. If the primary series begins at six weeks, a booster dose should be given 6 months or more after the third dose.

Ireland has administered only IPV since 2001.[4] No form of the OPV is available or used in Ireland currently.[6]

## NIAC recommendations for polio vaccination

NIAC recommends vaccination against polio using inactivated poliovirus vaccine (IPV) against all three types of polio.

1. **Primary vaccination**

   The primary course consists of 3 doses given at 2, 4 and 6 months as 6 in 1 vaccine. A fourth dose is recommended at 13 months for children born on or after 1st October 2024.[10]

2. **Booster vaccination**

   **Routine**

   A booster dose is recommended at 4-5 years of age as 4 in 1 vaccine.

   Children coming from other countries who have received four IPV containing vaccines before their fourth birthday as part of their primary course should receive the 4 in 1 booster (i.e. a fifth dose of IPV) ≥ 6 months after the previous dose.

   **Fully immunised persons at increased risk of exposure**

   Fully vaccinated persons aged 10 years and over at increased risk of exposure to poliovirus should be given a single dose of Tdap/IPV or Td/IPV.

## NIAC recommendations for polio vaccination for those coming to Ireland from countries using oral polio vaccine

Those coming to Ireland, from countries using oral polio vaccine (OPV), **vaccinated since April 2016**, will not have received tOPV. According to WHO guidance they should have received three doses of bOPV and two doses of inactivated poliovirus (IPV) containing vaccines.[2]

- If they meet these WHO requirements then only a single booster dose of an IPV containing vaccine is required at age 4-5 years in Junior Infants or at least six months after their last polio vaccine if older than this (DTaP/IPV if aged <10 years and Tdap/IPV or Td/IPV if aged ≥10 years).
- If they have unknown or incomplete polio vaccination status:
    - if they already had received three doses of bOPV they should receive the missed one or two IPV doses as recommended by WHO. A booster dose of an IPV containing vaccine is recommended at age 4-5 years in Junior Infants or at least six months after their final catch-up polio vaccine.
      or
    - if they have received two doses or less (including none or unknown) of bOPV, they should receive three doses of IPV containing vaccine (DTaP/Hib/HepB/IPV or DTaP/IPV if aged <10 years and Tdap/IPV or Td/IPV if aged ≥10 years). There should be a minimum interval of four weeks between IPV doses. A booster dose of an IPV containing vaccine is recommended at least six months after their third IPV vaccine.

Those coming to Ireland, from countries using OPV, **vaccinated prior to April 2016**, should have received three doses of tOPV.

- If they have received three doses of tOPV then a single booster dose of an IPV containing vaccine is required (DTaP/IPV if aged <10 years and Tdap/IPV or Td/IPV if aged ≥10 years).
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As noted in NIAC's 2022 recommendations regarding polio re-emergence, a critical component of the response is prioritising increasing the uptake of polio containing vaccines in the primary childhood and the school immunisation programmes aiming for vaccination uptake rates of 95% in each.[4]

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