



# Global Polio Resurgence

Source: TH

## Why in News?

Recently, the [World Health Organization \(WHO\)](#) has identified the presence of [poliovirus](#) in multiple countries, including **Pakistan, Cameroon, and several European nations**.

- The research suggests that **poliovirus may be primarily transmitted via the respiratory route** rather than the traditionally assumed faecal-oral route.

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## What is polio

- **Poliomyelitis (polio) is a highly infectious viral disease, mainly affecting children**
- **According to WHO, the virus is transmitted from person-to-person, mainly through the faecal-oral route**



### STRAINS

- **There are three types of polio virus strains — P1, P2 and P3**
- **P2 was eradicated globally in 1999**
- **India attained a polio free status in 2014 after successfully eliminating the wild P1 and P3 strains**

### VACCINATION SCHEDULE

**OPV:** At 6 weeks, 10 weeks and 14 weeks

**IPV:** At 6 weeks and 14 weeks

**OPV booster:** Between 16 and 24 months

## What are the Key Factors Contributing to Polio Resurgence?

- **Detection of Poliovirus:** The resurgence of polio is evidenced by recent detections of both **wild and vaccine-derived poliovirus** in various countries.
  - In 2024, Pakistan reported a total of 62 cases of wild poliovirus type 1 (WPV1).
  - Environmental samples containing poliovirus have also been found in cities such as **Barcelona, Warsaw, and Cologne (Germany)**, indicating potential **undetected or**

**unvaccinated populations** at risk.

- **Immunisation Gaps:** In fragile and conflict-affected areas, **routine immunization coverage has dropped** significantly, making children more vulnerable to polio outbreaks.
  - **Eg:** In Sudan's active conflict zones, vaccination coverage has dropped sharply from 85% to just 30%.
- **Shift in Vaccine Strategy:** The **Oral Polio Vaccine (OPV)** has been linked to outbreaks of **vaccine-derived poliovirus cases (cVDPV)**, which complicates eradication efforts.
  - Recent research emphasizes the **need for a transition to IPV**, which is **non-transmissible** and provides **effective protection against paralysis caused by poliovirus**.

## Difference Between Inactivated Polio Vaccine (IPV) and Oral Polio Vaccine (OPV)

- **Inactivated Polio Vaccine (IPV)**
  - **Advantages:**
    - **No risk of Vaccine-derived Polio:** IPV contains inactivated virus particles, which means there is no risk of the vaccine causing vaccine-induced polio.
    - **Safe for Immunocompromised Individuals:** Because IPV uses a dead virus, it is safe for people with weakened immune systems.
    - **Durable Immunity:** IPV requires multiple boosters to maintain **immunogenicity** against **polio virus infection**.
  - **Disadvantages:**
    - **Higher Cost:** IPV is more expensive to produce and administer compared to OPV.
    - **Requires Multiple Doses:** A complete IPV vaccination schedule typically involves a series of **2-4 shots** to provide full immunity.
    - **Limited Mucosal Immunity:** IPV does not provide strong immunity in the mucous membranes (e.g., the gut), which means it may be less effective at preventing virus transmission compared to OPV.
- **Oral Polio Vaccine (OPV)**
  - **Advantages:**
    - **Lower Cost:** OPV is cheaper to produce and distribute, making it more accessible in resource-limited settings.
    - **Fewer Doses Required:** OPV typically requires only **one or a few doses** to achieve effective immunity.
    - **Better Mucosal Immunity:** OPV provides strong mucosal immunity, particularly in the intestines, which helps to reduce the transmission of the poliovirus.
  - **Disadvantages:**
    - **Risk of Vaccine-derived Polio:** OPV contains live, attenuated poliovirus, which in rare cases can revert to a form that causes outbreaks of **vaccine-derived poliovirus (VDPV)**.
    - **Not Safe for Immunocompromised Individuals:** Because it contains live virus, OPV can be dangerous for people with weakened immune systems.
    - **Shorter-lasting Immunity:** Immunity from OPV may not be as long-lasting as that from IPV, requiring additional doses or boosters over time.

## What is Polio?

- **About:**
  - **Polio (*poliomyelitis*)** is a **highly contagious viral disease** affecting mainly children **under five**, **spreading via the fecal-oral route** or contaminated food/water, potentially **causing paralysis by invading the nervous system**.
  - There are three individual and immunologically distinct wild poliovirus strains:
    - Wild Poliovirus type 1 (**WPV1**), **WPV2** and **WPV3**.
- **Types of Vaccines:**
  - **Inactivated polio vaccine (IPV):** It protects against poliovirus **types 1, 2, and 3**

- **Trivalent oral polio vaccine (tOPV):** It protects against poliovirus types 1, 2, and 3 - following the "OPV Switch" in April 2016, **tOPV is no longer in use.**
  - The **OPV switch** was a global effort to replace the tOPV with the bOPV in April 2016.
- **Bivalent oral polio vaccine (bOPV):** It protects against poliovirus types 1, and 3
- **Monovalent oral polio vaccines (mOPV1, mOPV2 and mOPV3):** It protects against each individual type of poliovirus, respectively.
- **Initiatives Taken to Eradicate Polio:**
  - **India Specific:**
    - [Pulse Polio Programme](#)
    - [Intensified Mission Indradhanush 2.0](#)
  - **Global Initiatives:**
    - **Polio Eradication and Endgame Strategic Plan 2013-2018**
    - [World Polio Day \(24th October\)](#)
    - [Global Polio Eradication Initiative \(GPEI\)](#)

## UPSC Civil Services Examination, Previous Year Question

### **Prelims**

**Q. 'Mission Indradhanush' launched by the Government of India pertains to (2016)**

- (a) immunisation of children and pregnant women
- (b) construction of smart cities across the country
- (c) India's own search for the Earth-like planets in outer space
- (d) New Educational Policy

**Ans: (a)**

**Q. Which of the following are the objectives of 'National Nutrition Mission'? (2017)**

1. To create awareness relating to malnutrition among pregnant women and lactating mothers.
2. To reduce the incidence of anaemia among young children, adolescent girls and women.
3. To promote the consumption of millets, coarse cereals and unpolished rice.
4. To promote the consumption of poultry eggs.

**Select the correct answer using the code given below:**

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 1, 2 and 4 only
- (d) 3 and 4 only

**Ans: (a)**

