



# Polio

**For Prelims:** Polio, Vaccine Derived Poliovirus, WHO, Universal Immunization Programme

**For Mains:** Poliovirus, Immunization, Eradication

## Why in News?

Recently, **Vaccine-Derived Poliovirus (VDPV)** was detected in the environmental surveillance of sewage samples from Kolkata, Bengal.

- Most likely it has come from **someone's gut who is immune deficient and has since multiplied**. It is not a case of human-to-human polio transfer.
- A VDPV is a **strain of the weakened poliovirus** that was initially included in **OPV (Oral poliovirus vaccines)** and that has changed over time and **behaves more like the wild or naturally occurring virus**.

## What is Polio?

- **About:**
  - Polio is a **crippling and potentially deadly viral infectious disease** that affects the nervous system.
  - There are **three individual and immunologically distinct** wild poliovirus strains:
    - Wild Poliovirus type 1 (WPV1)
    - Wild Poliovirus type 2 (WPV2)
    - Wild Poliovirus type 3 (WPV3)
  - Symptomatically, **all three strains are identical**, in that they cause irreversible paralysis or even death. However, **there are genetic and virological differences, which make these three strains separate viruses** which must each be eradicated individually.
- **Spread:**
  - The virus is transmitted by **person-to-person mainly through the faecal-oral route** or, less frequently, by a common vehicle (for example, through contaminated water or food).
  - It largely **affects children under 5 years of age**. The virus **multiplies in the intestine**, from where it can invade the nervous system and can cause paralysis.
- **Symptoms:**
  - Most people with **polio do not feel sick**. Some people have **only minor symptoms**, such as fever, tiredness, nausea, headache, pain in the arms and legs, etc.
  - In rare cases, polio **infection causes permanent loss of muscle function** (paralysis).
  - Polio can be **fatal if the muscles used for breathing are paralysed** or if there is an infection of the brain.
- **Prevention and Cure:**
  - There is no cure, but it can be **prevented through immunisation**.
- **Vaccines:**
  - **Oral Polio Vaccine (OPV):** It is given orally as a birth dose for institutional deliveries, then primary three doses at 6, 10 and 14 weeks and one booster dose at 16-24 months of age.

- **Injectable Polio Vaccine (IPV):** It is introduced as an additional dose along with the 3<sup>rd</sup> dose of **DPT (Diphtheria, Pertussis and Tetanus) under the Universal Immunisation Programme (UIP)**.
- **Recent Outbreaks:**
  - In 2019, polio outbreaks were recorded in the Philippines, Malaysia, Ghana, Myanmar, China, Cameroon, Indonesia and Iran, which were mostly vaccine-derived in which a rare strain of the virus genetically mutated from the strain in the vaccine.
    - According to the **WHO (World Health Organisation)**, if the oral vaccine-virus is excreted and allowed to circulate in an unimmunised or under-immunised population for at least 12 months, it can mutate to cause infections.
- **India & Polio:**
  - India received polio-free certification by the WHO in 2014, after three years of zero cases.
    - This achievement has been spurred by the successful **Pulse Polio Campaign** in which all children were administered polio drops.
    - The last case due to wild poliovirus in the country was detected on 13<sup>th</sup> January 2011.

## What are the Polio Eradication Measures?

- **Global:**
  - **Global Polio Eradication Initiative:**
    - It was launched in **1988 by the Global Polio Eradication Initiative (GPEI), by national governments and WHO. Presently, 80% of the world's** population is now living in certified polio-free regions.
      - An estimated 1.5 million childhood deaths have been prevented, through the systemic administration of vitamin A during polio immunization activities.
  - **World Polio Day:**
    - It is observed every year on **24<sup>th</sup> October** in order to call on countries to stay vigilant in their fight against the disease.
- **Indian:**
  - **Pulse Polio Programme:**
    - It was started with an objective of achieving hundred percent coverage under Oral Polio Vaccine.
  - **Intensified Mission Indradhanush 2.0:**
    - It was a nationwide immunisation drive to mark the 25 years of **Pulse polio programme (2019-20)**.
  - **Universal Immunization Programme (UIP):**
    - It was launched in 1985 with the modification to 'Expanded Programme of Immunization (EPI). The objectives of the Programme include:
      - Rapidly increasing immunization coverage, Improving the quality of services, Establishing a reliable cold chain system to the health facility level, Introducing a district-wise system for monitoring of performance, Achieving self-sufficiency in vaccine production.

## UPSC Civil Services Examination, Previous Year Question

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

- (a) immunization 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)**

**Exp:**

- **Mission Indradhanush** is an immunization scheme launched by the Ministry of Health and Family Welfare, Govt on 25<sup>th</sup> December, 2014.
- Depicting seven colours of the rainbow, it aimed to cover all those children by 2020 who are either unvaccinated, or are partially vaccinated against seven vaccine preventable diseases which include diphtheria, whooping cough, tetanus, polio, tuberculosis, measles and hepatitis B.
- The mission is technically supported by WHO, UNICEF, Rotary International and other donor Partners.
- Therefore, option (a) is the correct answer.

**Source: TH**

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