



## Side-Effects of Covid-19 Vaccine

**For Prelims: Vaccines and types, Virus Strain and Mutation, Covishield and Covaccine, [World Health Organisation\(WHO\)](#).**

**For Mains: Reasons for Land subsidence, and Measures and Recommendations.**

[Source: IE](#)

### Why in News?

Recently, there has been a lot of controversy over the side-effects of **Oxford-AstraZeneca's** vaccine. It is sold in India under the brand name of "[Covishield](#)" by **Serum Institute of India (SII)**

- It is being linked to a rare adverse side effect called **Thrombosis with Thrombocytopenia Syndrome (TTS)**.

### What is Thrombocytopenia Syndrome?

#### ▪ About:

- **TTS** is also referred to as **vaccine-induced prothrombotic immune thrombocytopenia (VIPIT)** or vaccine-induced immune thrombotic thrombocytopenia (VITT).
- This rare syndrome has been observed in individuals who have received [Covid-19](#) vaccines utilising **adenoviral vectors**.
- It is generally believed to be caused by an **immune reaction** triggered by the **adenovirus vector** used in these vaccines.
  - **Adenoviruses** are non-enveloped, **double-stranded DNA viruses** which are considered excellent vectors for delivering target antigens to mammalian hosts because of their capability to induce both innate and adaptive immune responses.

#### ▪ Symptoms:

- **TTS** is linked to a variety of symptoms such as **difficulty breathing, chest or limb pain, small red spots or bruising beyond the injection site, headaches, numbness in body parts, and more.**
  - **Thrombosis** refers to the formation of blood clots, while **thrombocytopenia** is characterised by a low platelet count.

#### ▪ Risk- Benefit Analysis:

##### ◦ Risk:

- TTS most commonly occurs in **healthy young women** around thirty years old at a low frequency of about one to two cases per 100,000.

- At a general population level, it is estimated to occur at only about **two to three** cases per million vaccinated people.
- The annual risk of TTS is still much lower than the annual risk of dying in a road accident.
- **Benefit:**
  - Covishield has shown over **80% protection** against severe COVID-19 and over **90% protection** against death in various studies, even during the Delta wave.
  - For a 50% chance of getting Covid-19 and a 0.1% risk of death, the vaccine provides a significant mortality benefit, outweighing the risks by far.
  - It has not only **reduced disease severity** and **minimised immediate suffering** and stress on healthcare systems but also to **lower the risk of long-term disabilities** and premature heart attacks and strokes.
  - This risk was noted early in the pandemic, before vaccines were available, and vaccination has been shown to reduce this risk.
- **Other Rare Side Effects of Covid-19 Vaccines:**
  - A study of 99 million people found that cases of **Guillain Barre Syndrome, myocarditis, pericarditis, and cerebral venous sinus thrombosis (CVST)** were at least 1.5 times higher than expected after receiving mRNA and **ChAdOX1 (or Covishield) vaccine for Covid-19**.
  - The study confirmed that these illnesses were classified as **'rare' side effects** following the vaccination for Covid-19.
    - **CVST** refers to cerebral venous sinus thrombosis, which is the presence of blood clots in the brain.
    - **Guillain-Barre syndrome** is an immune system disorder that attacks the nerves, causing muscular damage and requiring prolonged treatment.
    - **Myocarditis** and **pericarditis** are conditions involving inflammation of the heart tissue.

## What were the Regulations and Concerns Related to Covid-19 Vaccination in India?

### ▪ Regulations Related to Covid-19 Vaccines in India:

- India has used **nearly 1.75 billion doses to vaccinate** approximately 80% of its vaccinated population.
- Covid-19 vaccines were **administered without the completion of phase-3 trials**, and the manufacturers did not have complete information on possible short-term or long-term side effects or fatalities.
  - **E.g.** The Phase 3 protocol for **Covaxin** (by Bharat Biotech) was **approved before the completion of Phase 2**, and the final vaccine candidate was chosen without considering the Phase 2 trial data.
- The **Corbevax** vaccine (by Biological E) received **emergency use authorisation** from the **Drug Controller General of India (DCGI)** for vaccinating 12-14-year-old children.

### ▪ Concern Related to Covid-19 Vaccines:

- In March 2021, Several European countries temporarily paused the use of **AstraZeneca's** vaccine due to reported cases of **blood clotting**.
- The **World Health Organization** stated that TTS was being reported in some cases after vaccinations with **Covishield** and **Vaxzevria**, but emphasised that the risk appears to be very low based on available data.
- European nations, UK, USA, and Australia **halted the use of Covieshield** due to TTS reports, despite the benefits outweighing the risks.
  - They had enough mRNA (like Pfizer-BioNTech and Moderna Covid-19) vaccines

available, which were more immunogenic and not linked to TTS, although cases of non-fatal [myocarditis](#) had been seen.

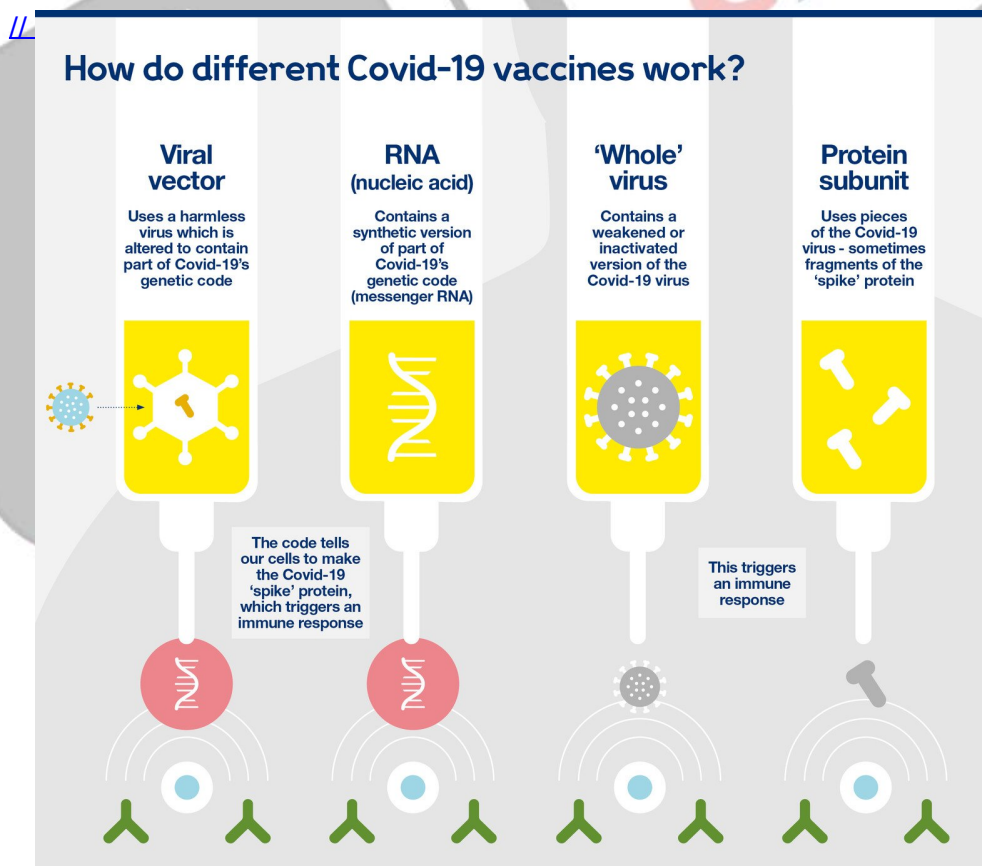
- In 2023, the **WHO** included **vaccine-induced immune thrombotic thrombocytopenia (VITT)** in its classification of **thrombosis with thrombocytopenia syndrome (TTS)**.

#### ▪ India's Stand:

- Before the Covid-19 vaccines were rolled out in India, the Indian government issued a **fact sheet in January 2021** cautioning the use of **Covishield** for individuals with low platelet counts.
- In May 2021, the Indian government reported **26 potential cases of blood clots related to the Covishield vaccine**, with a rate of 0.61 cases per million doses.
- The government maintained that the **risk is minimal** and that Covishield has a positive benefit-risk profile. No such events were reported for the indigenous vaccine, **Covaxin (by Bharat Biotech)**.
- The Ministry of Health and Family Welfare, GoI also noted that the **risk of blood clotting is lower in individuals of South and Southeast Asian** descent compared to those of European descent.

## FLiRT- A New Variant of Covid-19

- It is a new variant within the [Omicron](#) JN.1 lineage.
  - It has been detected in the US and is rapidly spreading.
  - This variant shows significant alterations in **spike (S) protein structure** and **increased resistance** to existing vaccines.
- Its **symptoms are similar to Omicron**, including sore throat, cough, congestion, tiredness, headache, muscle or body aches, runny nose, fever or chills, loss of smell and taste, and breathlessness in extreme cases.
- This variant is **highly transmissible** and can spread via respiratory droplets or touching infected surfaces.



## UPSC Civil Services Examination Previous Year Questions (PYQs)

### Prelims:

**Q. In the context of vaccines manufactured to prevent COVID-19 pandemic, consider the following statements: (2022)**

1. The Serum Institute of India produced COVID-19 vaccine named Covishield using mRNA platform.
2. Sputnik V vaccine is manufactured using a vector-based platform.
3. COVAXIN is an inactivated pathogen-based vaccine.

**Which of the statements given above are correct?**

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

**Ans: (b)**

PDF Reference URL: <https://www.drishtiias.com/printpdf/side-effects-of-covid-19-vaccine>

