



# Pfizer's Covid-19 Vaccine Candidate

## Why in News

Recently, **American pharma company Pfizer** has claimed that its **vaccine candidate BNT162b2 is more than 90% effective** in preventing [Covid-19](#) in participants without evidence of prior [SARS-CoV-2](#) infection.

## Key Points

### ▪ BNT162b2:

- It is a **single nucleoside-modified messenger RNA** (modRNA) vaccine, which is made of a short segment of genetic material (the messenger RNA/mRNA) which **provides instructions for a human cell to make a harmless version of a target protein**, in this case the spike protein of SARS-CoV-2, in order **to activate an immune response**.
  - The mRNA vaccine is a new approach to protecting against viral infection.
  - Unlike traditional vaccines, which work by training the body to recognise and kill proteins produced by pathogens, mRNA tricks the patient's immune system to **produce viral proteins itself**.
  - The proteins are harmless, but sufficient to provoke a robust immune response.
- Its **phase 3 clinical trial began in July** with 43,538 participants, 38,955 of whom had received a second dose by November. The case split between vaccinated individuals and those who received the placebo indicates a **vaccine efficacy rate above 90%**, at 7 days after the second dose.
- It means that **protection is achieved 28 days after the initiation of the vaccination**, which consists of a **2-dose schedule**.
- Pfizer has become the **first firm to release promising late-stage trial data of a potential vaccine** for Covid-19, even though the announcement **does not have scientifically conclusive evidence** on the safety and efficacy of the vaccine candidate.
- However, the **analysis of the vaccine candidate** by an **external independent Data Monitoring Committee** (DMC) has **not reported any serious safety concerns**.
- The announcement comes days before the company plans to submit safety and efficacy data from the trial to the American regulator, the **United States Food and Drug Administration** (USFDA) seeking emergency use authorisation.

### ▪ Vaccines Worldwide:

- As of mid-October 2020, the [World Health Organization](#) (WHO) has identified **42 candidate vaccines** at the stage of clinical trials, up from 11 in mid-June.
- **Ten of them** were at the most advanced **phase 3 stage**, in which a vaccine's effectiveness is tested on a large scale, generally tens of thousands of people across several continents.
- The **USA biotech firm Moderna**, several **state-run Chinese labs**, and a **European project led by the University of Oxford** and **AstraZeneca** are also closing in on potentially viable vaccines.
- **Two Russian Covid-19 vaccines** have been registered for use even before clinical trials were completed, but have not been widely accepted outside of Russia.

## India's Progress

- India is **preparing to administer a vaccine against Covid-19 to its population early in 2021** and for that, it is **working with neighbouring countries** on possible collaborative clinical trials of vaccine candidates in the future.
- A specialist team of scientists and researchers from the [Indian Council of Medical Research](#) (ICMR) and the **Department of Biotechnology** (DBT) under the Union Ministry of Science and Technology, has **imparted training to doctors and regulators** in **Sri Lanka, Myanmar, Bangladesh, Bhutan, Nepal, and Afghanistan**.
- The Indian team has focused its training on conducting crucial **phase II and III** human clinical trials of the potential vaccine candidate along lines of India's regulatory mechanism.
  - In **phases II/III**, reactogenicity (ability to produce common, adverse reactions), immunogenicity (ability to provoke an immune response), and safety of the vaccine candidate are assessed in a larger population.
- The **current aim is to facilitate a future collaborative clinical trial** but in **future, it will allow India to explore the option of buying** the potential Covid-19 vaccine from these neighbouring countries.
- **Indigenously Developed Vaccines:**
  - **ZyCoV-D**: Designed and developed by Zydus (a pharmaceutical company) with support from the DBT.
  - **Covaxin**: Developed by Bharat Biotech in collaboration with the ICMR.
- **Assistance in Global Trails:**
  - **Covishield**: Name given to an Oxford-AstraZeneca Covid-19 vaccine candidate which is technically referred to as AZD1222 or ChAdOx 1 nCoV-19.
  - **Sputnik V**: The first vaccine to be officially registered and has been developed by Moscow's Gamaleya Institute in collaboration with the Russia's defence ministry.

**Source: IE**

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