

CoV-IN-SIGHTS: Evidence-Based Answers to FAQs Director General Medical Services (Navy)



FAQ # 06 (24 May 2021): COVID-19 VACCINE UPDATE

1. What are the General Principles on Which COVID Vaccines Work?

Around the world, presently, there are 100 COVID-19 vaccine candidates undergoing clinical trials and 184 candidates in pre-clinical development. Vaccines try to achieve optimum immunity to the virus, and occasionally might also be able to stop transmission¹. In India, the following candidate vaccines have been approved for use:-

- (a) **Oxford–AstraZeneca (Covishield)**. In this vaccine, a Chimpanzee Adenovirus (ChAdOx) vector is introduced into the human body cells, which amplifies the spike protein (the same protein which causes the severe inflammation). The body, in response, triggers a broad and robust immunity which prevents further entry and spread of the SARS CoV-2 virus in the body.
- (b) **Sputnik**. This vaccine uses two different Adenovirus vectors, Ad26 and Ad5 to boost the immunity, like the same technology as used in Covishield.
- (c) **Covaxin**. The vaccine is developed using Whole-Virion Inactivated Vero Cell. Inactivated virus cells or dead virus, incapable of infecting people, are prepared in cells outside the body or in the laboratory. These dead virus cells are able to trigger the immune system to mount a defensive reaction against an infection.

2. How can the Three Vaccines be Compared as per their Schedule, Efficacy and Storage?²

	COVAXIN	COVISHIELD	SPUTNIK
Vaccine Platform Description	Whole-Virion Inactivated Vero Cell	Single Viral Vector (non Replicating)	Two Viral Vectors (non Replicating)
Schedule	Two doses (0,4 weeks)	Two doses (0,12-16 weeks)	Two doses (0,3 weeks)
Route of administration	Intramuscular	Intramuscular	Intramuscular
Developer	Bharat Biotech	Serum Institute of India	Gamaleya Research Institute, Moscow
Current status of evaluation	Completed Phase III clinical trial (Efficacy Trial)	Completed Phase III clinical trial (Efficacy Trial)	Completed Phase III clinical trial (Efficacy Trial)
Storage	2 ^o C to 8 ^o C	2 ^o C to 8 ^o C	-18 ^o C
Efficacy (as per Phase III trial report)	78%	70.4%	91%

3. Recently, the Govt of India has come out with a guideline that the 2nd dose of COVISHIELD vaccine is to be given 12 to 16 weeks after the 1st dose. What is the justification behind this policy?

The second dose of the vaccine gives a boost to the immune system so that the antibody response, T cell mediated response (to fight infection in recent future) and

memory response (to fight infection in distant future) are very strong. The memory response lasts for a long time, it kicks off the body response quickly. Recent evidence has found that delaying the second dose up to 12 to 16 weeks actually gave a better immune boost.³

4. [When can an Individual who has Recovered from COVID, take the Vaccine?](#)

Studies have concluded that naturally acquired immunity as a result of past COVID infection may provide approximately 83% protection against reinfection, compared to people who have not had the disease before. This appears to last at least for 3 to 5 months from first becoming sick. As per recent guidelines of MoHFW, an individual who has recovered from COVID, can take the vaccine after three months.⁴

5. [Can Two Doses of COVID Vaccine be Taken from Two Different Manufacturers?](#)

Presently, interchangeability of vaccines, which means the first dose with one vaccine and the second dose with a different vaccine, is not permitted. However, science on COVID is changing and evolving and the knowledge base is growing. Clinical trials have been initiated with vaccine candidates that are looking at interchangeability. Presently, vaccine trials are being conducted with Pfizer and AstraZeneca and Moderna and Novavax vaccines, results of which are still awaited.⁵

6. [What about vaccination for children? Can COVID vaccines presently available in India be administered to children?](#)

Vaccination for children is in the developmental phase. Moderna has initiated Phase 2/3 trial of their vaccine in healthy children (06 months to <12 years).⁶ India's apex drug regulator has granted permission for conducting the phase 2/3 clinical trial of Bharat Biotech's Covaxin Covid-19 vaccine in the age group of 2 to 18. ⁷ Till date only Pfizer-BioNTech vaccine has been approved for administration in adolescents aged 12 to 15 years.

References.

1. There are four types of COVID-19 vaccines: here's how they work | Gavi, the Vaccine Alliance
2. Draft landscape and tracker of COVID-19 candidate vaccines (who.int)
3. Voysey M et al. Oxford COVID Vaccine Trial Group. Single-dose administration and the influence of the timing of the booster dose on immunogenicity and efficacy of ChAdOx1 nCoV-19 (AZD1222) vaccine: a pooled analysis of four randomised trials. Lancet. 2021 Mar 6;397(10277):881-891.
4. Past COVID-19 infection provides some immunity but people may still carry and transmit virus - GOV.UK (www.gov.uk)
5. Researchers could report on interchangeability of Covid vaccines by next month - Pulse Today.
6. Moderna Announces First Participants Dosed in Phase 2/3 Study of COVID-19 Vaccine Candidate in Pediatric Population | Moderna, Inc. (modernatx.com)
7. Bharat Biotech's Covaxin approved for phase 2/3 trials on children | India News, The Indian Express

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