

COVID-19 Vaccine -Booster Shot: Separating the Signal

Separating the Signal from the Noise

While a large population across countries is yet to be fully vaccinated, the emergence of the new variant, Omicron, has increased the significance of Covid-19 vaccine booster doses.



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The rationale behind booster doses

Booster doses are administered to a vaccinated population that has completed a primary vaccination course to enhance the immunity of the population. A booster dose serves as a reminder to the body's immunity to produce sufficient antibodies and other immune mechanisms to effectively tackle the infection in case of exposure to the virus. With time, antibodies, to the organism vaccinated against, reduce, and a booster dose restores vaccine effectiveness and protection.

There is evidence available that supports the effectiveness of booster doses for other vaccines like Hepatitis B.

Factors to determine the need for Covid-19 booster shots

Some studies have shown immunity waning, specially six to seven months after the second dose. The medical fraternity is divided in the opinion of booster doses. One faction believes that booster doses are required. There is a large group that is against booster doses citing various risks and lack of enough proof/ study on the effectiveness of the booster doses of the vaccines currently administered in India.

Waning Immunity:

	Covishield	Covaxin
Booster dose availability	Yes, it is available. AstraZeneca vaccine that uses the same recombinant as Covishield is being administered in various countries	Trial started in May at All India Institute of Medical Sciences (AIIMS) in Delhi and Patna
Right time to administer booster dose	Cyrus Poonawallah, the SII Chairman, said, "After six months, the antibodies go down for those who have completed second dose"	Bharat Biotech CMD, Krishna Ella, said that a booster dose would be ideal six months after receiving the second dose of the anti-Covid vaccine

Both vaccines, Moderna and Pfizer, have shown a drop in protection against certain variants over a period of time. Based on studies¹ in England that examined the vaccines' effectiveness against the Delta variant over time, it was found that the Pfizer-BioNTech vaccine is about 90 percent effective at preventing symptomatic infection two weeks after the second dose, but drops to 70 percent effectiveness after five months.

Effectiveness of Vaccines:

A team led by scientists from Harvard University and Israel's Clalit Research Institute recently concluded that the extra inoculation could significantly reduce the risk of severe complications of Covid-19. The data² showed that people who received the Covid-19 booster shot had a 93% lower risk of hospital admissions, compared to people who had their second shot at least five months prior.

Prioritised Vaccination

According to a study³, most cancer patients who had no measurable immune response after being fully vaccinated for Covid-19, were helped by a third vaccine dose.

According to Dr. Katherine O'Brien, Professor at the Bloomberg School of Public Health and Executive Director of the International Vaccine Access Center, at Johns Hopkins University "it may be necessary to receive a third dose for immunocompromised people, because the first two doses aren't doing what they do in otherwise normal, healthy people."

In addition, people with comorbidities and advanced age may benefit from a booster shot.

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What are the side effects of a Covid-19 booster shot?

After getting vaccinated for Covid-19, one might experience temporary symptoms such as a sore, swollen arm. One might run a fever and experience body aches, headaches, and tiredness for a day or two. Chills and swollen lymph nodes are also possible side effects. These symptoms do not mean one is sick. They signal that the immune system is responding to the shots and building up protection against Coronavirus.

Global stand on Covid-19 booster shots

Over 30 countries including the USA, UK, Canada, France, Germany, Czech Republic, Chile, China, Denmark, Finland, etc. have started administering booster shots to their elderly population or people with underlying conditions or compromised immune system.



The Govt. of India is yet to take a decision on booster shot for Covid-19 and currently, the Ministry of Health and Family Welfare (MOHFW) recommended schedule stands at two doses. A comprehensive policy, customised to encompass Indian epidemiology and the pandemic situation, is being drafted and will be rolled out soon.

WHO's stand on Covid-19 booster shot

Amidst the difference of opinion within the medical fraternity, and adoption of the booster shot in various countries around the world, WHO has expressed apprehensions around the administration of booster doses. According to WHO, the ongoing global vaccine supply constraints risk exacerbating inequities in vaccine access by driving up demand and diverting supply while priority populations in some countries, or in subnational settings, have not yet received their first dose of vaccination. WHO reiterates that the focus should remain on urgently increasing global vaccination coverage with the primary series of vaccines, with an objective to protect against the severe disease. Furthermore, WHO's vaccine advisory panel recently recommended that people who are immunocompromised or received an inactivated vaccine should receive a booster dose of a Covid-19 shot.





Sources:

- 1. Effectiveness of a third dose of the BNT162b2 mRNA COVID-19 vaccine for preventing severe outcomes in Israel: an observational study
- 2. Vaccine effectiveness and duration of protection of Comirnaty, Vaxzevria and Spikevax against mild and severe COVID-19 in the UK Yet to be peer reviewed
- 3. Shapiro, L.C., et al. (2021) Efficacy of booster doses in augmenting waning immune responses to COVID-19 vaccine in patients with cancer

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