

Nasal vaccine

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In news– Bharat Biotech's COVID-19 recombinant nasal vaccine has been approved by the Central Drugs Standard Control Organisation (CDSCO) for primary immunisation of those aged 18 years and above in emergency situations.

About Nasal Vaccine-

- Vaccines are usually given through different routes, with the most common being injectable shots delivered into the muscles (intramuscular) or the tissue just between the skin and the muscles (subcutaneous).
- There are also other routes of delivery, especially in some vaccines for infants, that include administering the **liquid solution orally instead of injecting**.
- In the intranasal route, the vaccine is sprayed into the nostrils and inhaled.
- Many viruses, including the coronavirus, enter the body through mucosa – wet, squishy tissues that line the nose, mouth, lungs and digestive tract triggering a unique immune response from cells and molecules there.
- Experts believe an **intranasal vaccine can act against the virus from the time it tries to break the body's barrier**.
- Instead, **intramuscular vaccines** generally fail at eliciting this mucosal response, as they **rely on immune cells** mobilised from elsewhere in the body flocking to the site of infection.
- **These vaccines aim to overcome potential difficulties with mass vaccination and reduce the cost** by doing away with the need for needles and syringes.
- Intranasal vaccines are also expected to **cut down on the dependence on various trained personnel** to administer the vaccine, according to experts.

How will a nasal vaccine work?

- In the case of both delivery routes, vaccines trigger a response in the blood.
- **B cells**, for example, would churn out antibodies – including a particularly **potent disease-fighter called IgG** – to roam the body in search of the virus. Other cells, called **T cells**, would either help B cells produce antibodies or seek out and destroy the infected cells.
- But vaccines that are **injected through the nose or mouth also tap into another set of immune cells that hang around mucosal tissues**.
- The B cells that reside there can make another type of antibody, called IgA, that plays a key role in destroying the airway pathogens.
- In addition, the T cells that are residing nearby will be able to memorise the pathogens that it encountered and will lifelong scout the areas where these were first encountered.

Central Drugs Standard Control Organisation(CDSCO)-

- It is the **Central Drug Authority for discharging functions assigned to the Central Government under the Drugs and Cosmetics Act**.
- CDSCO **under the Ministry of Health and Family Welfare regulates the safety, efficacy and quality of notified medical devices** under the provisions of Drugs and Cosmetics Act, 1940 and Rules made thereunder.
- Its functions also include, **regulatory control over the import of drugs**, approval of new drugs and clinical trials, meetings of Drugs Consultative Committee (DCC) and Drugs Technical Advisory Board (DTAB), approval of certain licenses as Central License Approving Authority is exercised by the CDSCO headquarters.
- **Under the Drugs and Cosmetics Act, CDSCO is responsible for approval of New Drugs, Conduct of Clinical Trials**, laying down the standards for Drugs, control over the quality of imported Drugs in the country and

coordination of the activities of State Drug Control Organizations by providing expert advice with a view of bring about uniformity in the enforcement of the Drugs and Cosmetics Act.

- **Further CDSCO along with state regulators, is jointly responsible for grant of licenses of certain specialized categories of critical Drugs** such as blood and blood products, I. V. Fluids, Vaccine and Sera.