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The Big Picture: India and the Vaccination Drive

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Why in News?

- India began the **"World's Largest Vaccination Program"** on January 16, 2021.
- The Prime Minister of India said that India is entering a decisive phase of vaccination in the fight against **COVID-19**, with the approval of two **made-in-India COVID-19 vaccines**.

The PM has also said that two vaccines are more cost-effective than any other in the world and that India's vaccine production & delivery capacity will be used to help all humanity in fighting this crisis.

Key Points

- It is India's **first ever adult vaccination drive**.

- The **Drug Controller General of India (DCGI)** has granted the **emergency-use approval** for two indigenous vaccines: **COVISHIELD** by **Serum Institute of India** and **COVAXIN** by **Bharat Biotech**.
 - The two vaccines are found to be safe and no major side effects are expected. However, little pain or redness in the skin can be observed.
 - The vaccines have gone through preclinical animal experiments on animals like rabbits, mice and hamsters followed by non-human primates.
 - Out of the two vaccines, **Covaxin is an inactivated vaccine** whereas **Covishield is a live vaccine**.
- In the **first phase of vaccination**, the first 3 crore people to be vaccinated include the healthcare workers and frontline workers.

The cost of vaccination of these people will be borne by the government.

Live and Inactivated Vaccines

- **Live Vaccines:** They use a **weakened (or attenuated) form of the germ** that causes a disease.
 - Because these vaccines are so similar to the natural infection that they help prevent, they create a strong and long-lasting immune response.
 - **Note:** As they contain a small amount of the weakened live virus, people with weakened immune systems, long-term health problems, or people who've had an organ transplant should not be given these vaccines without any prior consultation with the healthcare provider.
- **Inactivated vaccine:** Active pathogens are grown in large numbers and then killed either by a chemical or heat. Although the pathogen is killed, or made to lose its reproduction capacity, various parts of the pathogen are intact. E.g The antigen (the chemical structure) that is recognised by the immune system is left unimpaired.

As the pathogen is dead, it cannot reproduce nor cause even a mild disease. Thus, it is safe to administer to even people with lesser immunity, like the old and those who have comorbidity.

India and Vaccines

- At present **80-90% of the world's** whole **Measles** vaccine is provided by India.

India supplies all the **Rubella** vaccines to **South America**.
- The indigenous developed **meningococcal vaccine** of India is supplied to the entire **Sub-Saharan Africa**.

Meningococcal meningitis is caused by **Neisseria meningitidis bacteria**. It is a serious infection of the thin lining that surrounds the brain and spinal cord.
- The indigenous **rotavirus vaccine** is going to 16 countries in the world.

- Various novel vaccines have been introduced by India, such as the world's first **subunit rabies vaccine**. It has been approved by the Drug Controller General of India.

Subunit vaccines are composed of **protein or glycoprotein components of a pathogen** that are capable of inducing a protective immune response and may be produced by conventional biochemical or recombinant DNA technologies.

Government Strategy For Smooth and Effective Drive

- **Preparatory measures:** The key preparatory aspects that have been undertaken include the physical infrastructure, human resources and training of the vaccinators.
 - **The digital aspect:** The government has launched the **Co-WIN application** for the registration of the citizens and to generate digital certificates of vaccination.
- **Community participation:** Besides preparatory aspects, the **community participation** has also been emphasised by the Prime Minister. He has urged all to come forward and help in eliminating **vaccine hesitancy**.
- **Beneficiary identification:** Separate templates have been developed for the healthcare workers and the frontline workers.
 - People above the age of 50 who have comorbidities will be the next to be vaccinated.
 - **Aadhar** will also be used for the beneficiary identification.

Steps Need to be Taken

- **Spreading awareness:** Leaders, influential people and healthcare workers who will be vaccinated need to come forward and help spreading awareness about the vaccine.
- **Effective collaboration:** Effective and decentralised implementation with the collaboration of centre, state, communities and health care workers.
- **Proper training:** Ensuring proper training of vaccinators and adopting measures to maintain temperature of vaccines.
- **Monitoring:** Keeping watch of any side effects that may arise due to vaccines and adopting measures to be used in an emergency for such situations.

The Co-WIN Application

- To **monitor the inoculation drive and track the listed beneficiaries for vaccination** on a real-time basis, the central government has developed **Covid Vaccine Intelligence Network or Co-WIN application**.
 - Co-WIN will facilitate **real time information of vaccine stocks and storage temperature** during the COVID-19 vaccination drive.
- The app will be used as a back-end software during COVID-19 vaccination drive, starting from Saturday.
 - The self-registration module of Co-WIN App has not been released yet.

Challenges

- **Vaccine hesitancy:** Either they are common people, or the frontline workers, vaccine hesitancy, if exists, it may obstruct the smooth implementation of the vaccination drive.
 - If the healthcare workers are hesitant about getting vaccinated, it will not create a good impact among common people as they are the role model for the people who will be vaccinated next.
 - There is uncertainty and suspicion about the side effects of the vaccine.
- **Issues with the Co-WIN App:** Issues such as loss of internet connectivity are expected to be faced in the app, which could cause problems while tracking the vaccine stocks, or in the updation of data of the beneficiaries.
- **Lack of experience:** The Covid-19 Vaccination drive is India's first ever large scale immunisation programme. There is a lack of experience due to which the chances of mistakes are likely to happen.
- **Vaccine wastage:** Each vaccine vial contains 10 doses and must be used within 4 hours of opening. This could lead to vaccine wastage.

Way forward

- **Eliminating vaccine hesitancy:** The covid-19 vaccines are for adults, the communication is required in order to resolve the confusions and to eliminate the vaccine hesitancy.
 - Engagement with the community based organisations and spreading awareness by educating people about the vaccine.
- **Janbhagidari:** Community partnership or janbhagidari should be emphasised.
 - People should take the vaccine and spread the word about the efficacy and security of the vaccine.
- **Preventing vaccine wastage:** organised appointment for vaccinations, ensuring once opened, the vaccine is surely utilised and not wasted.
- **Continuing the flow of vaccines:** Taking lessons from other countries, India should continue the flow of vaccines.
 - The US got stalled because they started to store the second dose of vaccines too.
 - India should continue the flow of vaccines to the areas where it is required.
- **Vaccination + covid-appropriate behaviour:** Neither Covid appropriate behaviour nor vaccination is enough alone. Both have to go hand in hand in order to completely eliminate the pandemic.
 - Covid-appropriate behaviour:**
 - Wearing the mask properly.
 - Washing hands regularly as hygiene is very important.
 - Following the physical distancing of 6 feet.
- **Tracking the virus:** The new variants of virus found till date are manageable but it is important to constantly look for emergence of any vaccine resistant virus.

- **Looking after the immunogenicity:** Looking up at the immunogenicity of the vaccine; how long does the effect of the vaccine lasts and how the cell-mediated immune responses are developing.

Conclusion

- India has now emerged as a global covid vaccine hub which is done not only by manufacturing or developing vaccines but also ensuring how it will be transported and how the entire vaccination drive has to be done.
- For the world's largest vaccination against covid-19, a multi-prong approach is required including educating people, following the vaccination process, keeping a check on new strains of virus, maintaining the records of essential data of the beneficiaries and refining our strategy.
- Vaccine hesitancy is the main obstruction in the smooth vaccination drive, in order to defeat the pandemic, vaccine hesitancy should be eliminated first as It is not the vaccine but vaccination that prevents an infection.