

# Coronavirus Disease (COVID-19): Vaccine Access and Allocation

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The spread of COVID-19, the infection caused by the novel coronavirus detected first in Wuhan, China, is a significant task for the entire world. Accelerated vaccination is the only way out of this pandemic. Even though the high demand for vaccination across the globe, there is a minimal vaccine supply [1]. On the other hand, as the pandemic weight is borne mainly in developing countries, global equitable access to COVID-19 vaccination must be prioritized. Announced in September 2020, the WHO Fair Allocation Framework aims to ensure that successful COVID-19 vaccines and treatments are shared equitably across all countries. It also advises that all countries receive doses in proportion to their population size to immunize the highest-priority groups [2]. In January 2021, the WHO announced the COVID-19 vaccine equity declaration, a call to global, national and local leaders to accelerate the equitable rollout of vaccines in every country, starting with health workers and those at highest risk for COVID-19 [3].

Further, the Strategic Advisory Group of Experts on Immunization (SAGE) of WHO has released two important documents which help to guide the allocation and prioritization of populations to receive COVID-19 vaccines:

- Values Framework for the allocation and prioritization of COVID-19 vaccination.
- Roadmap for Prioritizing Population Groups for Vaccines against COVID-19.

This document includes high-level guidance in two vital areas: globally concerning the values and ethical considerations regarding allocating COVID-19 vaccines between countries and nationally on prioritizing groups for limited vaccination supply within countries. At the same time, the Roadmap for Prioritizing Population Groups for Vaccines against COVID-19 defines public health strategies for priority groups (frontline healthcare professionals, older adults, and those who have serious underlying medical conditions) when there are different levels of vaccine availability in different epidemiologic settings [4].

In tackling COVID-19, besides the urgent need to accelerate the development and manufacturing of safe and effective vaccines, the COVID-19 Vaccines Global Access initiative (COVAX) plays a crucial role in providing fair and equitable access to vaccines approved by WHO for all countries. COVAX, co-led by Gavi, the Coalition for Epidemic Preparedness Innovations (CEPI), WHO and UNICEF, plans to allocate 330 million doses of the initial COVID-19 vaccine batches, which cover about 3.3% of the total populations of the 145 participating countries, during the first half of 2021. This allocation mechanism is a two-phase approach; in the first

phase, the plan is to allocate doses to the people at the most significant risk of infection (frontline healthcare professionals) and severe disease. In the second phase, as more doses are produced, the vaccines can go to groups less at risk of being infected or of suffering badly [5]. Next, COVAX aims to provide at least 2 billion vaccine doses by the end of 2021, as UNICEF prepares them for distribution.

More than 240 potential COVID-19 vaccines are in development and over 42 clinical trials worldwide. As part of an expanded alliance of COVAX, CEPI launched a global network of laboratories to centralize the analysis of clinical trial samples of candidate vaccines [6]. In March 2021, CEPI announced funding the development of vaccines to protect against SARS-CoV-2 mutations, started with B.1.351 variant discovered in South Africa. The consortium also began a five-year, \$3.5-billion program to mitigate emerging SARS-CoV-2 variants worldwide and better prepare for future pandemics [7].

The WHO currently defines four variants those with the most potentially concerning changes as “variants of concern”:

- The UK variant (B.1.1.7) was first detected in southeast England in September 2020. Scientists suggest that the B.1.1.7 variant spreads about 50% more efficiently than the original strain of COVID-19. Nowadays, this variant had been detected in over 50 countries worldwide.
- The South Africa variant (B.1.351) has been identified in at least 20 other countries. There is evidence that vaccines are less potent against B.1.351.
- The Brazil variant (P.1), spotted in Manaus, Amazonas state, has spread to more than 40 countries. Stimulation suggested that P.1 variant is 1.7 to 2.4 times more transmissible than the previous SARS-CoV-2 strain.
- The B.1.617, which was detected first in India. The B.1.617 variant contains double mutations, L452R and E484Q, to the spike protein and spread through 17 countries raising global concern [8, 9].

If limiting the development of variants is a priority, then the goal should be to distribute the vaccines to maximize their benefit globally. As the United States enters the phase of vaccine supply exceeding demand, it and other wealthy nations must recognize they have a vital interest in aiding global vaccination, especially in the developing world, because a patchwork of vaccinated people facilitates the rise of escape variants that could limit the current vaccines’ effectiveness [10]. That is why

the global coordination of vaccination that maximizes vaccine benefits, promotes international solidarity, strives for fairness and equity, is transparent and trustworthy is vital to ending this pandemic [11].

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