

Challenges of COVID-19 Vaccines

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COVID-19 is an infectious disease caused by RNA virus named coronavirus, formally referred to as severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2). Since the first case of COVID-19 disease, which was identified on December 8, 2019, in Wuhan, the Hubei province of China, it has rapidly become a worldwide threat and is declared a pandemic by World Health Organization (WHO). Till 9th July 2021, there have been 185 million confirmed cases of COVID-19, including 4 million deaths, reported by WHO.¹

Globally, in the first week of July new cases have increased as compared to the last week of June, with over 2.6 million cases reported during the mid July. The number of deaths reported has decreased by 7% in comparison to the 1st week of July 2021, which is the lowest weekly mortality figure since early October 2020. At the same time thirty percent of the increase in incidence has been reported by the European Region whereas the African region reported a sharp increase in mortality (23%). Except for the Americas and South-East Asia regions, all other regions reported an increase in the number of deaths in the first week of July.² With more than a million deaths, worldwide, global efforts to produce COVID-19 vaccines have gained momentum. The potential sources of inequitable and unjust allocation of COVID-19 vaccines are not hard to find; the solution is considerably more complex. Several countries have prioritized securing vaccine doses to cover their own populations first, even when the need to respond to COVID-19 might be greater elsewhere.³ Facing uncertainty over which vaccines will prove optimally effective, countries with the means to secure future vaccine supplies might ensure against these risks by buying more vaccines than they eventually need or can use. Financing for COVID-19 vaccines for low and middle-income countries has lagged behind vaccine deals done by high-income countries.

As of July 2021, 17 vaccines are currently being offered to the general population, 8 vaccines are being monitored in the wider population after being approved and many more are undergoing different phases of the trial.^{4,5} The current worldwide scenario has proven that only having licensed vaccines is not enough to achieve global control of COVID-19 pandemic; affordability production and deployment are the keys to control this pandemic. The world needs more doses of COVID-19 vaccines than it has produced previously for any other vaccine in history to immunize enough people for global vaccine immunity.⁶ No single vaccine approach is currently emerging as a winner and it is likely that multiple safe vaccines will be

approved.⁷ The main challenges in ensuring global access to COVID-19 vaccines can be explained under the heading production, affordability, allocation, and deployment.⁶ Despite the efforts aimed at scaling up manufacturing capacity, vaccines were scarce, especially in the first phases of deployment. Wealthy countries have already signed purchase commitments for more than 2 billion doses, limiting equitable access and international efforts for global allocation appear unsuccessful so far. Vaccine distribution poses another challenge and is accompanied by questions such as how much it will cost and who will pay for it.⁸ High and upper-middle-income countries with the means for investing in research and development and procuring these future vaccines provide important financing to bring these vaccines to market but could leave others short of such life-saving drugs.⁹ Vaccine distribution is the main problem of this inequality rather than supply as the high-income countries pursued a strategy of overbuying COVID-19 vaccine doses in advance.¹⁰ Three main challenges pave the way to successful vaccine deployment: proving efficacy in clinical trials; scaling-up manufacturing capabilities; and allocating vaccine resources globally.⁷

News portals state that about 25.2% of the world population has received at least one dose of a COVID-19 vaccine and 3.42 billion doses have been administered globally, and the daily administered vaccines are 30.35 million, whereas only 1% of people in low-income countries have received at least one dose. At the current pace of 31.5 million a day, it would take another year to achieve a high level of global immunity. The rate, however, is steadily increasing, and new vaccines by additional manufacturers are coming to market.¹¹ Low and middle-income countries are facing devastating second and third waves of COVID-19 made worse by a lack of supply of effective vaccines. Dani Rodrik, an economist at Harvard Kennedy School, shared an article on how more than 80% of the world's vaccines have gone to high-income countries leaving only 0.3% to low-income countries. The shortage of vaccines is leading to a surge in coronavirus cases in developing economies including India, Brazil, Argentina and Colombia.¹²

Government of Nepal has been continuously receiving vaccines from different countries and government should give more attention to estimation of vaccination requirement of the country. International support is the must in this situation, along with this, involvement of private sector and effective logistic system is also important factor to be considered for the better coverage of vaccines.

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