



## Editorial: Challenges Confronting COVID-19 Vaccination



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### ABSTRACT

Vaccination is a fundamental approach in mitigating the COVID-19 pandemic. But there are challenges confronting successful COVID-19 world-wide vaccination. This editorial pointed out to the doubt on long-lasting immunity gained from vaccination, vaccine hesitancy and inequity in vaccine access as wounding issues facing the global combat against COVID-19.

**Keywords:** COVID-19, Equity, Pandemic, Vaccination refusal

Throughout the history, vaccination has been considered as a fundamental approach for primary prevention of infectious disease. But, their ultimate effectiveness especially in terms of containment of the pandemic rely on several important issues. The challenges even become more sophisticated when it comes to the novel vaccines developed for COVID-19 with limited available data for their long-term effectiveness. Persistent duration of immunity gained from vaccination varies widely and depend on many factors. Long-lasting immunity especially in case of pandemic is of highly importance because achieving the so-called herd immunity

trust in the length of time the vaccines give protection [1]. This is a very big concern raised in the communities and should be answered promptly for developing further strategies to contain the pandemic. Currently, ongoing data from Center for Disease Control and prevention (CDC) suggest a booster dose for three types of approved mRNA-based (Pfizer-BioNTech, Moderna) and viral vector (Johnson & Johnson Janssen) vaccines [2]. Some countries are also considering booster doses for other unauthorized viral-vector and inactivated virus vaccines. The uncertainty toward persistent effectiveness of COVID-19 vaccine may provoke countries to adopt vaccination against COVID-19 as a long-term

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strategy for mitigating the pandemic. This means that countries might be required to devote part of their health budget for perpetual vaccine supply and vaccine production. Another concern in vaccine efficacy is emerging SARS-CoV-2 mutation against which the efficacy of current vaccines might be unknown [3]. This condition makes it necessary that the vaccines to be adjusted according to the evolution of the virus [4].

Vaccine hesitancy is another conflicting issue in the world-wide vaccination. It refers to refusal or delay in acceptance of COVID-19 vaccines in spite of vaccine availability [5]. There are currently notable level of skepticism regarding to COVID-19 vaccination [6]. Public doubt on vaccine safety is a great threat to successful vaccination of the communities and has been shown to be significantly related to the use of social media and foreign disinformation campaigns [7]. Health belief constructs such as perceived benefit and perceived barriers are another important predictors of vaccination intent [8]. So, the attempt should be made to improve health promotion and perceived benefits of vaccination among pessimistic groups of population.

The other problem facing the world-wide vaccination is inequity in vaccine access creating sort of vaccine nationalism. There is a wide heterogeneity in access to vaccination among countries. According to the global database of COVID-19 vaccination, as of November 14, 2021, only 4.5% of population in low-income countries obtained at least one dose of vaccine [9]. While the global community were successful in sciences and technology for development of novel vaccines, the governments were failed in politics to cooperate globally. There is a simple fact about the pandemic; no country can feel safe, as long as the virus continues to spread. Therefore, to combat the pandemic, efforts should be tailored on achieving a global cooperation on equitable access to vaccine. Failure to achieve global vaccine equity may accelerate new mutations in SARS-CoV-2. The consequence of this detrimental failure is a potential hazard that threatens all communities.

## Ethical Considerations

### Compliance with ethical guidelines

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### Conflict of interest

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## References

- [1] Mallory ML, Lindesmith LC, Baric RS. Vaccination-induced herd immunity: Successes and challenges. *J Allergy Clin Immunol.* 2018; 142(1):64-6. [DOI:10.1016/j.jaci.2018.05.007] [PMID] [PMCID]
- [2] Center for Disease Control and Prevention (CDC). COVID-19 vaccine booster shots [Internet]. 2021 [Updated 2021 November 19]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/booster-shot.html>
- [3] Noh JY, Jeong HW, Shin EC. SARS-CoV-2 mutations, vaccines, and immunity: Implication of variants of concern. *Signal Transduct Target Ther.* 2021; 6(1):1-2. <https://www.nature.com/articles/s41392-021-00623-2>
- [4] World Health Organization. The effects of virus variants on COVID-19 vaccines [Internet]. 2021 [Updated 2021 March 01]. Available from: <https://www.who.int/news-room/feature-stories/detail/the-effects-of-virus-variants-on-covid-19-vaccines>
- [5] Butler R, MacDonald NE, SAGE Working Group on Vaccine Hesitancy. Diagnosing the determinants of vaccine hesitancy in specific subgroups: The guide to Tailoring Immunization Programmes (TIP). *Vaccine.* 2015; 33(34):4176-9. [DOI:10.1016/j.vaccine.2015.04.038] [PMID]
- [6] Vashi AP, Coiado OC. The future of COVID-19: A vaccine review. *J Infect Public Health.* 2021; 14(10):1461-5. [DOI:10.1016/j.jiph.2021.08.011] [PMID] [PMCID]
- [7] Wilson SL, Wiysonge C. Social media and vaccine hesitancy. *BMJ Glob Health.* 2020; 5(10):e004206. [DOI:10.1136/bmjgh-2020-004206] [PMID] [PMCID]
- [8] Lin Y, Hu Z, Zhao Q, Alias H, Danaee M, Wong LP. Understanding COVID-19 vaccine demand and hesitancy: A nationwide online survey in China. *PLoS Negl Trop Dis.* 2020; 14(12):e0008961. [DOI:10.1371/journal.pntd.0008961] [PMID] [PMCID]
- [9] Mathieu E, Ritchie H, Ortiz-Ospina E, Roser M, Hasell J, Appel C, et al. A global database of COVID-19 vaccinations. *Nat Hum Behav.* 2021; 5(7):947-53. [DOI:10.1038/s41562-021-01122-8] [PMID]