

Preparing the Community for a Vaccine Against COVID-19

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The availability of a vaccine to protect the community against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the most significant and immediate technical challenge humanity has ever faced especially when the general public's trust in the vaccine is alarmingly brittle. For months, the world has eagerly awaited news of the COVID-19 vaccine. The initial COVID-19 vaccine trials have demonstrated promising results against SARS-CoV-2 and are now being developed by many manufacturers.

As of August 2020, there are 231 vaccine candidates in development,¹⁻⁴ although no candidate has completed clinical trials to prove its safety and efficacy. Twenty-six vaccine candidates are in clinical trials, with six beginning phase III clinical trial and 20 still in phase I-II,²⁻⁴ to provide estimates of two billion doses of vaccines that are needed to meet the global requirements by the end of 2021.⁵ This unprecedented progress towards an effective vaccine is by far the most important breakthrough in the world. The experts estimate that a fast-tracked vaccine development process could accelerate a successful vaccine to market by the end of 2020.⁶

The race for the coronavirus vaccine gives hope for millions of individuals. Therefore, it is important to ensure that this is done without compromising the vaccines' safety and efficacy by ensuring thorough clinical trials. Several major concerns have been voiced among health advocates, for example, who will get access to the vaccine? Will it get to everyone who demands it? Will the access be only to countries wealthy enough to enter into lucrative contracts in progress? And more significantly, if the state receives the vaccine, will the community's willingness to get vaccinated be high enough?

Seventy-five member states have submitted expressions of interest to protect their populations by joining the global COVID-19 Vaccine Global Access Facility, a mechanism designed to assure rapid, fair, and easy access to COVID-19 vaccines worldwide. The COVID-19 vaccines are going to be offered equally to all or any participating countries, proportional to their populations, initially prioritizing health care workers (HCWs), but ultimately covering 20% of the most vulnerable population of participating member states.⁵ If these efforts are successful, the COVID-19 vaccine will be deemed efficient and safe for human use after passing regulatory approvals and World Health Organization (WHO) prequalification.

Oman's mass vaccination campaign experiences from the 2009 H1N1 influenza pandemic⁷ as well as globally^{8,9} have explicitly demonstrated that launching mass vaccination campaigns during pandemics or outbreaks require purposeful, well planned, and coordinated activities ahead of time to ensure the preparation of both the medical community and the public at large.

Introduction of mass COVID-19 vaccine

An estimated vaccine coverage of 55% to 82% of the population is needed to attain the herd immunity required to guard the vulnerable adult populations.¹⁰ In addition, given what is known so far regarding children's susceptibility to COVID-19 and the pre-existing immunity among children, the threshold herd immunity might be even lower than 40%.^{11,12}

Many individuals among the eligible population would be willing to receive a vaccine against SARS-CoV-2. Nevertheless, the accessibility of a vaccine is insufficient to ensure broad immunological protection as the vaccine must also be satisfactory

to both the health community and the public. Vaccine hesitancy is a major obstacle to vaccine undertaking and, therefore, the achievement of herd immunity, which is required to guard the vulnerable populations.¹³

The full impact of vaccine uptake requires widespread public acceptance to attain population-level immunity. Thus, measuring public acceptance of a COVID-19 vaccine must start before a vaccine becomes available by undertaking a social-behavioral survey among different community strata, especially among a high-risk group and HCWs.

Studies showed that the enthusiasm for vaccines is highest during an epidemic, prior to, and immediately coming after the WHO prequalification of a novel vaccine.¹⁴ Therefore, the general public health mass campaign plans to incorporate the acquisition, distribution of vaccine, and vaccination initiation at earliest when the community enthusiasm for a COVID-19 vaccine is the highest.¹⁴ Moreover, public awareness campaigns should be started simultaneously or even ahead of launching the vaccine.

Proactive COVID-19 vaccine mass campaign planning

In designing and planning for the mass campaign, various factors have to be considered and streamlined effectively, specifically, how organizations are set up for this critical moment.

The mass COVID-19 vaccination campaign approaches are highly guided by: a) strong policymakers and scientists especially epidemiologists and behavioral scientists partnership with the community to address their concerns ahead of time; b) advocating for a COVID-19 vaccine ideally to be led by the communities, associations, and community leaders namely local leaders; c) accessibility of the vaccine to be transparently prioritized to the foremost vulnerable segments of the population, ensuring that they receive the vaccine as a priority including HCWs; d) public education and vaccine advocacy efforts to be well planned, including attempts to growing misinformation from the community or the media; e) COVID-19 vaccination strategy demands a whole-of-society response, comprising government institutions, business, communities, associations, media, and entertainment; f) a ladder methodology of mass COVID-19 vaccination to be adopted to engage diverse audience groups; g) a proactive,

educational vaccine campaign to be leveraged for social media to cast the widest network and target the most important and largest audience possible; h) implement adverse events following immunization surveillance programme; and i) supplying the particular vaccine, syringes, needles, and take into consideration when planning the supply chain.

The role of National Immunization Technical Advisory Group (NITAG) in the introduction of the COVID-19 vaccine

The NITAG has a fundamental role during the COVID-19 pandemic to produce evidence-based approaches to COVID-19 vaccination policymakers using an overt and transparent process for decision-making. The committee is additionally required to provide recommendations on selecting the proper vaccine, doses, mode of administration, and prioritizing vulnerable groups for early vaccination when the vaccine is predicted to be delayed or in short supply.

The role of HCWs in the introduction of COVID-19 vaccine

HCWs are crucial in the preparation and carrying out of the mass vaccination program and the health care agencies must monitor real-time social media, as this program can be a root of both factual and false data. Strong recommendations by clinicians can bolster support for vaccinations in the community and positively influence nurses, paramedics, and allied health professionals. Thus, frontline HCWs can be educated on sharing recommendations for COVID-19 vaccination, including their personal experiences with the disease and the vaccine.

CONCLUSION

The anticipated vaccines are going to be presented to the general public transparently. A mass vaccination plan will address the potential obstacles to broad adoption through educational campaigns and endorsement of community leaders and healthcare professionals. The subsequent approaches are highly recommended to enhance the likelihood of rapid vaccine uptake including: the vaccine to instantly be rendered to the general public as soon as efficacy and safety are proven; HCWs to be well-informed in advance of recommendations for COVID-19 vaccination; and timely communication efforts

targeting both HCWs and the community are essential to reinforce confidence as vaccination policies will need to adjust to reflect changing situations and new knowledge rapidly. Finally, the general public health officials to develop and design robust COVID-19 vaccine mass education campaign strategies, with a particular focus on involving social influencers across the country and proactively address known and potential obstacles to vaccine acceptance using linguistically and culturally competent messages.

REFERENCES

1. WHO. Draft landscape of COVID-19 candidate vaccines. [cited 2020 July 31]. Available from: <https://www.who.int/publications/m/item/draft-landscape-of-covid-19-candidate-vaccines>.
2. COVID-19 vaccine development pipeline. Vaccine Centre, London School of Hygiene and Tropical Medicine. [cited 2020 July 15]. Available from: <https://www.medbox.org/document/covid-19-vaccine-development-pipeline#GO>.
3. COVID-19 vaccine tracker. Milken Institute. [cited 2020 June 23]. Available from: <https://covid-19tracker.milkeninstitute.org/>.
4. Draft landscape of COVID 19 candidate vaccines. World Health Organization. [cited 2020 July 21]. Available from: <https://www.who.int/publications/m/item/draft-landscape-of-covid-19-candidate-vaccines>.
5. WHO. News release Geneva/London. [cited 2020 July 15]. Available from: <https://www.who.int/news-room/detail/15-07-2020-more-than-150-countries-engaged-in-covid-19-vaccine-global-access-facility>.
6. Craven J. COVID-19 vaccine tracker. [cited 2020 July 30]. Available from: <https://www.raps.org/news-and-articles/news-articles/2020/3/covid-19-vaccine-tracker>.
7. Al Awaidy ST, Al Obeidani I, Singh JV, Al Mahrouqi S, Al Busaidy SS, Said Al Baqlani, et al. Epidemiology of pandemic H1N1 in Oman and public health response, 2009. *J Community Med Health Educ* 2015;5:343.
8. Sarma H, Budden A, Luies SK, Lim SS, Shamsuzzaman M, Sultana T, et al. Implementation of the world's largest measles-rubella mass vaccination campaign in Bangladesh: a process evaluation. *BMC Public Health* 2019 Jul;19(1):925.
9. Schaetti C, Ali SM, Chagnat C-L, Khatib AM, Hutubessy R, Weiss MG. Improving community coverage of oral cholera mass vaccination campaigns: lessons learned in Zanzibar. *PLoS One* 2012;7(7):e41527.
10. Sanche S, Lin YT, Xu C, Romero-Severson E, Hengartner N, Ke R. High contagiousness and rapid spread of severe acute respiratory syndrome coronavirus 2. *Emerg Infect Dis* 2020;26(7):1470-1477.
11. Britton T, Ball F, Trapman P. A mathematical model reveals the influence of population heterogeneity on herd immunity to SARS-CoV-2. *Science* 2020 Aug;369(6505):846-849.
12. Gomes MG, Aguas R, Corder RM, King JG, Langwig KE, Souto-Maior C, et al. Individual variation in susceptibility or exposure to SARS-CoV-2 lowers the herd immunity threshold. *medRxiv* 2020.
13. Dubé E, Laberge C, Guay M, Bramadat P, Roy R, Bettinger JA. Vaccine hesitancy an overview. *Human Vaccines & Immunotherapeutics* 9(8): 1763–1773.
14. Chen RT, Orentein WA. Epidemiologic methods in immunization programs. *Epidemiol Rev* 1996;18(2):99-117.