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Commentary

We need to start thinking about promoting the demand, uptake, and equitable distribution of COVID-19 vaccines NOW!

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ABSTRACT

SARS-CoV-2 (COVID-19) is spreading rapidly within countries around the world, thus necessitating the World Health Organisation (WHO) to project that the peak of the pandemic has not been reached yet. Globally, COVID-19 public health control measures are being implemented; however, promising COVID-19 vaccine candidates are still in the early-stage clinical trials.

Judging from previous vaccine programs around the world and the challenges encountered in the distribution and uptake, there seems to be no guarantee that there will be widespread acceptance and equitable distribution of the new COVID-19 vaccines when they are approved for use.

Therefore, there is an urgent need to start engaging the public to allay their fears and misconceptions with the view to building trust and promoting acceptance and ultimately achieving a potential impact in controlling the pandemic. Borrowing from previously used successful public health strategies, including the application of the health belief model to engage communities, can go a long way in promoting the demand, uptake, and equitable distribution of the COVID-19 vaccine, thereby minimizing the likelihood of vaccine hesitancy.

1. Commentary

1.1. The COVID-19 pandemic

As corona virus disease (COVID-19) cases continue to increase globally, promising COVID-19 vaccine candidates are currently under development necessitating the need to think about their potential demand, distribution, and uptake to maximize their desired impact. COVID-19 was first reported in Wuhan City, Hubei Province, China in December 2019 and spread to various countries and declared a pandemic on March 11, 2020 [1]. As of October 04, 2020, a total of over 34 million cases had been reported from countries worldwide with over one million confirmed deaths associated with the disease [2]. The dynamics of COVID-19 spread have varied per country with epicenters changing from China to Italy and now the USA, Mexico, and India. Current non-pharmaceutical interventions set by WHO to control the pandemic are aimed at reducing the SARS-CoV-2 virus spread by encouraging people to stay at home, maintain a physical distance of at least 2 m, and adhere to infection prevention and control techniques. Currently, there are promising COVID-19 vaccine candidates in different stages of clinical trials [3]. When these vaccines are finally approved for use, it will be a great milestone in controlling the COVID-19 pandemic. However, there is a need to engage the public early enough to promote the uptake of these vaccines to serve their purpose.

1.2. Impact of previous vaccine programs

Vaccines have been very impactful in the eradication of diseases like smallpox globally and wild polio in Africa, and the control of infectious diseases such as measles, influenza, yellow fever, and Ebola [4]. Before the COVID-19 pandemic, countries delivered vaccines for vaccine-preventable diseases free of charge to their citizens while others did so at a subsidized cost. To a large extent, the vaccination uptake has gained ground, especially in low- and middle-income countries. Through

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initiatives of multilateral organizations like GAVI, the Vaccine Alliance, many children living in low and middle-income countries benefitted from mass vaccination campaigns. These campaigns recorded positive outcomes including reducing the prevalence of the six killer diseases in children and reduced communicable disease-related mortality.

1.3. Challenges faced by previous vaccine programs

Amidst the successes recorded by vaccine programs, they have been challenges that slowed down their potential impact as seen in the polio eradication program. The factors that have been associated with poor uptake of vaccines, like Human Papilloma Virus, vary depending on the setting and include the availability of vaccines, their costs, and awareness of opportunities for vaccination. Behavioral factors have also been associated with the success or failure of vaccine programs [5]. Behaviors like vaccine hesitancy have affected previous vaccine programs even before the COVID-19 pandemic era especially in scenarios where the vaccine is readily available and accessible. "Vaccine hesitancy refers to delay in acceptance or refusal of vaccines despite the availability of vaccination services [6]." In high-income countries such as the U.S., vaccines for use in children faced opposition from groups of parents who were unpopularly referred to as *anti-vaxers*. Members of such groups around the world actively deny the effectiveness of vaccines, citing retracted research on a correlation between vaccines and autism in children [6]. The effect of these movements led to vaccination hesitation and subsequently the resurgence of measles in remote parts of the U.S. and other countries [6]. Similar trends were observed in refusal to receive seasonal flu vaccines also in the U.S.A. These events not only underscore the negative impact of misconceptions and false beliefs on the delivery of preventive healthcare, but also the role of the medical, scientific, and political community in safeguarding citizens.

1.4. Challenges that COVID-19 vaccine programs could face

COVID-19 and its vaccine programs could face similar challenges to those faced by previous vaccine programs as evidenced by believable conspiracy theories and myths. These can have negative impacts on vaccine uptake by populations around the world. Some were targeted at the potential source of the novel virus, while others touted alleged immunity or susceptibility by race or ethnicity, and others gossiped about the "real purpose" of the vaccines - "to infect people with COVID-19 [7]." The international community needs to dispel these rumors and engage the communities around the world with authentic information about COVID-19 and its vaccine programs. Research studies on the uptake of upcoming COVID-19 vaccines currently under development show varying levels of acceptance. When asked whether they would accept a shot of an efficacious COVID-19 vaccine, the majority said they would, but this depended on the level of efficacy of the vaccine [8]. Views and perspectives on CoVID-19 vaccines varied from study to study and these factors that could affect vaccine uptake need to be addressed. This can be through various strategies of behaviour change and community engagement.

1.5. Strategies previously used to promote vaccine uptake and their equitable distribution

Various strategies have been tested to determine whether they could predict and promote the uptake of COVID-19 vaccines when they are ready for use by the general population. The Health Belief Model (HBM), one of the theories used in understanding health and illness behaviors has demonstrated utility in understanding COVID-19 vaccination intention and willingness to pay [9]. Also, community engagement interventions have been shown to be effective in improving health behaviors, self-efficacy, and social support. This can also be applied to COVID-19 public health prevention measures like vaccination. The use of community engagement has also been advocated for by the World Health Organisation (WHO) to promote understanding of COVID-19 and uptake of COVID-19 prevention measures like wearing of face masks and promoting physical distancing.

The COVID-19 vaccine efforts should also be guided by a need for equitable access globally between high income and low- and middle-income countries. It is worth noting that the majority of promising vaccine candidates in the pipeline are being developed in high-income countries [3]. The demand for COVID-19 vaccines will be global, although there is a need to distribute them equitably within populations. Vaccines can be prioritized for frontline health-care workers and people at greatest risk of severe illness and death. High-income countries must not monopolize the global supply of COVID-19 vaccines. A potential risk as observed during the 2009 influenza A/H1N1 pandemic is where high-income countries negotiated large advanced orders for the vaccine, leaving out low-income countries [10]. The consequence of this in the COVID-19 pandemic era would be a suboptimal allocation of a potentially scarce resource. To avoid this, governments could ensure there is a globally fair allocation system for COVID-19 vaccines. With sufficient political will and public sector financing, such a system could be established using existing institutions and partnerships like GAVI, the vaccine alliance, and the Coalition for Epidemic Preparedness Innovations, CEPI.

2. Conclusion

The COVID-19 vaccine programs could face similar challenges like those faced by previous vaccine programs before the COVID-19 pandemic. However, these programs achieved their desired impacts amidst the challenges. Good practices and lessons learned by previous vaccine programs can be applied during the COVID-19 vaccine programs. For the COVID-19 vaccines in the pipeline to achieve their desired impact, it is crucial to initiate public engagement early even before their final approval with a robust plan for their equitable distribution.

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Authors' contributions

DBA, SDD, FH and GNA contributed to the initial conception and writing of this manuscript.

Declaration of competing interest

The authors declare that they have no competing interests.

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