

VIEWPOINT

COVID-19: BEYOND TOMORROW

Planning for a COVID-19 Vaccination Program

Sarah Schaffer DeRoo, MD, MA

Division of General and Community Pediatrics, Children's National Hospital, Washington, DC; and The George Washington University Elliott School of International Affairs, Washington, DC.

Natalie J. Pudalov, BA

The George Washington University School of Medicine and Health Sciences, Washington, DC.

Linda Y. Fu, MD, MS

Division of General and Community Pediatrics, Children's National Hospital, Washington, DC; and The George Washington University School of Medicine and Health Sciences, Washington, DC.



Viewpoint

pages 2455, 2462, and 2460

Corresponding

Author: Sarah Schaffer DeRoo, MD, Division of General and Community Pediatrics, Children's National Hospital, 111 Michigan Ave NW, Washington, DC 20010 (sschaffer@childrensnational.org).

The long-term solution to the coronavirus disease 2019 (COVID-19) pandemic, hopefully, will be a globally implemented, safe vaccination program that has broad clinical and socioeconomic benefits. Dozens of vaccines are in development, with 8 currently in phase 1 trials. Some scenarios predict the earliest, widespread availability of a COVID-19 vaccine to be in 2021.¹ As launches of prior mass vaccination programs have demonstrated, careful planning to ensure readiness of both the general public and the health community for a COVID-19 vaccine should begin now.

To substantially reduce morbidity and mortality from COVID-19, an efficacious and safe vaccine must be delivered swiftly and broadly to the public as soon as it is available. However, the mere availability of a vaccine is insufficient to guarantee broad immunological protection; the vaccine must also be acceptable to both the health community and general public. Vaccine hesitancy is a major barrier to vaccine uptake and the achievement of herd immunity, which is required to protect the most vulnerable populations. Depending on varying biological, environmental, and sociobehavioral factors, the threshold for COVID-19 herd immunity may be between 55% and 82% of the population.²

The groundwork for public acceptance of a COVID-19 vaccine must be carefully started before a vaccine becomes available.

Given that certain individuals will be ineligible for COVID-19 vaccination due to age, immunocompromise, and other preexisting medical conditions, a vaccine refusal rate greater than 10% could significantly impede attainment of this goal. Recent surveys, that included 493 and 2200 individuals, suggest only 3 in 4 people would get vaccinated if a COVID-19 vaccine were available, and only 30% would want to receive the vaccine soon after it becomes available.^{3,4} Confidence in vaccines lies along a spectrum, and individuals who have hesitation about routine childhood vaccines have expressed various concerns.⁵ In their report on vaccine hesitancy, Edwards and Hackell⁵ identified 3 broad categories of parents' concerns regarding childhood vaccines: (1) the necessity of vaccines, (2) vaccine safety, and (3) freedom of choice.⁵ This Viewpoint describes these categories of concerns with regard to a future COVID-19 vaccine and presents suggestions to enhance the likelihood of rapid, widespread vaccine uptake in the United States.

Potential Objections to a COVID-19 Vaccine

Individuals who question the necessity of vaccines have historically questioned the underlying principle of mass vaccination. Among the most common misconceptions are that vaccination benefits do not outweigh the risks, and that immunity derived from surviving a disease is superior to immunity from vaccination.⁵ Concerns about the necessity of a COVID-19 vaccine may be reduced by recent memory of the overwhelming morbidity and mortality associated with the disease. Chen and Orenstein⁶ demonstrated that enthusiasm for vaccines is highest during a pandemic, prior to, and immediately following the release of a novel vaccine. As such, the health community should capitalize on an anticipated, early public enthusiasm for a COVID-19 vaccine with a well-organized, rapid vaccine distribution plan.

Vaccine safety will likely be a significant concern given the rapid development and testing process, underlying suspicion about vaccines among segments of the population, and mistrust of the government's pandemic response. As such, vaccine safety concerns should be addressed before and during vaccine program roll out. The public should be informed about the rigorous testing and ongoing monitoring required by the vaccine approval process. Educational campaigns also should include information about the contribution of individual vaccination to herd immunity. Transparency about vaccine effectiveness and adverse events to set public expectations will likely improve trust in a COVID-19 vaccine, but messaging should take care to avoid unintentionally overemphasizing the risk of rare adverse events.

Arguments based on freedom of choice may reflect mistrust of the medical community. While various subpopulations have their bases for mistrust, the perspectives of African American individuals, in particular, are critical to consider as a matter of health equity. Early reports from cities and states demonstrate the disproportionate burden of COVID-19 disease borne by African American people.⁷ Studies link mistrust of the health care system and fears of experimentation among some African American people to historical and contemporary mistreatment and disparities in care.⁷ Fu et al⁸ found among a sample of African American individuals (n = 110) higher levels of trust in vaccine advice from race-concordant vs race-discordant physicians, as well as high levels of trust in community advisors including disease survivors, school nurses, and other parents. This suggests public health campaigns should enlist cultural leaders outside of traditional medical and public health communities as vaccination champions. Cultural leaders should be made partners to develop and spread

culturally relevant messaging and ensure educational content is shared via readily accessible venues and formats.

Mounting a Proactive COVID-19 Vaccine Educational Campaign

Robust public health campaigns should harness traditional and social media to engage a diverse audience. Social media serve as a conduit for both factual and false information, and it is important that the health community counteract anti-COVID-19 vaccine tropes on social media in real time or these harmful ideas may become normalized by individuals. According to the nonprofit Public Good Projects, currently trending stories question the safety of a future COVID-19 vaccine, criticize a potential vaccination mandate as “tyrannical,” and promote conspiracy theories that forced vaccination will be used to inject a microchip to track individuals, as well as to cull the global population. Emerging evidence suggests that correcting misinformation on social media—either through individual comment or link to evidence-based information—may be effective in changing health beliefs.⁹ Public health campaigns must engage with traditional and social media platforms now to monitor, counter, and prevent the spread of fringe notions about a future COVID-19 vaccine before dangerous myths take root in the public psyche.

Frontline health care workers will play a central role in encouraging COVID-19 vaccination. Many studies have found that physicians are the most important influencers of vaccine decision-making.⁵ Thus, strong physician recommendations can bolster public and individual support for a COVID-19 vaccine. Physicians who share personal anecdotes about being immunized and immunizing their family members are effective in encouraging vaccine uptake in vaccine-hesitant families.¹⁰ As such, achieving a high vaccination coverage level of health care workers early on not only ensures an adequate workforce to treat infected patients, but also allows medical authority figures to share their positive vaccination experiences with patients. While most studies have focused on the role of physicians,

the influence of nurses and allied health professionals on patients' vaccination attitudes and beliefs also is important. Health care workers are exposed to the same media stories as the general public and may be subject to the same cognitive biases that can lead to excessive reliance on anecdotal evidence and false conclusions. Ensuring that all individuals who interface with patients in the clinical setting are confident about the safety and effectiveness of a future COVID-19 vaccine is critical for presenting a unified message of strong vaccination support from the medical community.

Conclusions and Recommendations

The groundwork for public acceptance of a COVID-19 vaccine must be carefully started before a vaccine becomes available. The health community will likely benefit from early public enthusiasm for a COVID-19 vaccine, and it is critical to build on that momentum to encourage swift, broad vaccine uptake as it becomes available. To promote future COVID-19 vaccine uptake, the following approaches are suggested.

First, a COVID-19 vaccine should rapidly be delivered to the public as soon as rigorous testing has been completed, and efficacy and safety have been established. The vaccine should be equitably and justly distributed, particularly targeting individuals at highest risk for complications and disease transmission to others if initial vaccine supply does not meet demand. Second, the plan for a COVID-19 mass vaccination program should proactively address known potential obstacles to vaccine acceptance using linguistically and culturally competent messaging. Third, public health officials should develop a robust COVID-19 vaccine educational campaign harnessing traditional and social media, with a particular focus on involving social influencers and targeting misinformation. Fourth, frontline health care workers should be taught how to make strong recommendations for COVID-19 vaccination, including, if relevant, sharing their personal experiences with COVID-19 and the vaccine.

ARTICLE INFORMATION

Published Online: May 18, 2020.
doi:10.1001/jama.2020.8711

Conflict of Interest Disclosures: Dr Fu reported receiving grants from Pfizer Inc. No other disclosures were reported.

REFERENCES

- Rowland C, Johnson CY, Wan W. Even finding a COVID-19 vaccine won't be enough to end the pandemic. *Washington Post*. May 11, 2020. Accessed May 13, 2020. <https://www.washingtonpost.com/business/2020/05/11/coronavirus-vaccine-global-supply/>
- 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). doi:10.3201/eid2607.200282
- Trujillo KL, Motta M. A majority of vaccine skeptics plan to refuse a COVID-19 vaccine, a study suggests, and that could be a big problem. Published May 4, 2020. Accessed May 6, 2020. <https://theconversation.com/a-majority-of-vaccine-skeptics-plan-to-refuse-a-covid-19-vaccine-a-study-suggests-and-that-could-be-a-big-problem-137559>
- LX/Morning Consult. *National Tracking Poll #200395: March 24-25, 2020*. LX/Morning Consult; 2020.
- Edwards KM, Hackell JM; Committee on Infectious Diseases, the Committee on Practice and Ambulatory Medicine. Countering vaccine hesitancy. *Pediatrics*. 2016;138(3):2016-2146. doi:10.1542/peds.2016-2146
- Chen RT, Orenstein WA. Epidemiologic methods in immunization programs. *Epidemiol Rev*. 1996;18(2):99-117. doi:10.1093/oxfordjournals.epirev.a017931
- Yancy CW. COVID-19 and African Americans. *JAMA*. Published online April 15, 2020. doi:10.1001/jama.2020.6548
- Fu LY, Haimowitz R, Thompson D. Community members trusted by African American parents for vaccine advice. *Hum Vaccin Immunother*. 2019;15(7-8):1715-1722. doi:10.1080/21645515.2019.1581553
- Bode L, Vraga EK. See something, say something: correction of global health misinformation on social media. *Health Commun*. 2018;33(9):1131-1140. doi:10.1080/10410236.2017.1331312
- Kempe A, O'Leary ST, Kennedy A, et al. Physician response to parental requests to spread out the recommended vaccine schedule. *Pediatrics*. 2015;135(4):666-677. doi:10.1542/peds.2014-3474