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## Behaviorally-informed strategies for a national COVID-19 vaccine promotion program

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National efforts to develop a COVID-19 vaccine at “warp speed” will likely yield a safe and effective vaccine by early 2021. However, this important milestone is only the first step in an equally important challenge: getting a majority of the US public vaccinated. In a September 2020 survey of 10,093 US adults, only 51% indicated that they were definitely or probably willing to be vaccinated with a novel COVID-19 vaccine, 25% reported that they were probably not willing to get the vaccine, and 24% reported that it is unlikely that they would be vaccinated.<sup>1</sup> This survey further revealed that self-reported acceptance rates were lower among Black individuals (32%, 263 of 822); those with lower educational attainment (47%, 676 of 1,438) among those with high school or less education, compared to 56%, 1,673 of 2,988, among college graduates and 63%, 1,693 of 2,668, among those with a postgraduate education, and Republican voters (44%, 1,817 of 4,129).<sup>1</sup>

The U.S. needs a national strategy for promotion of COVID-19 vaccines that unites the urgency and commitment of Operation Warp Speed with innovative behavioral science and social marketing approaches to increase COVID-19 vaccine confidence and acceptance in diverse populations.

Core to any successful strategy is the need to rebuild trust in the rigor of vaccine trials and the integrity of the approval process. A large literature on vaccine acceptance identifies some essential strategies: simple, easy-to-understand language; messaging that emphasizes science over politics; endorsements by diverse and well-regarded celebrities and opinion leaders; and emphasis on facts and evidence over myths and disinformation. For the COVID-19 vaccine, special attention must be given to rebuilding trust in communities that have

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historically experienced medical exploitation, unconsented experimentation, and social and economic marginalization.<sup>2</sup>

Beyond promoting trust in vaccines, new strategies and approaches will be needed to substantially increase uptake. This Viewpoint proposes five strategies, informed by insights from behavioral science, for a national COVID-19 vaccine promotion program. These strategies are proposed with the recognition that many uncertainties remain: the timing of approval or authorization of one or more vaccines; the safety and efficacy profile of the vaccine(s); the implementation of priority allocation schemes by state and local authorities; the capacity of existing immunization programs and channels to support COVID-19 vaccine promotion and distribution; and the further politicalization of vaccine approval and acceptance.

## **Behaviorally informed strategies**

### **Make the vaccine free and easily accessible.**

Ample research has shown that reducing friction such as difficulty signing up for programs and hassle factors such as wait times, inconvenient service locations, and paperwork increases uptake of programs of services. Eliminating seemingly small co-payments or other fees, can contribute to increasing uptake of retirement savings plans, public benefit programs, educational opportunities and vaccination.<sup>3</sup> Many experts believe that a key strategy is to make vaccination easy and convenient and to have incentives that support their use as these approaches are more likely to succeed than trying to change people's minds.<sup>4</sup> In any case, COVID-19 vaccines should be available for free at the point of care (with no out-of-pocket costs) to all US residents. In addition, to reduce time and other barriers, it will be important to make vaccines accessible through a wide variety of outlets (health care centers, clinicians' offices, retail pharmacies, occupational health offices of employers, retirement homes, school clinics). Given current vaccine hesitancy, and the complexity of administering some of these vaccines (such as requirements for vaccine storage at extremely low temperatures), whether simplification is possible and will work is unclear, but it is necessary to make it as easy as possible to be immunized.

### **Make access to valued settings conditional on getting vaccinated.**

Many retail outlets and restaurants have made face coverings mandatory for the protection of employees and other customers. In a similar way, access to certain settings could be made conditional on receiving the COVID-19 vaccine: health care clinical settings (with the exception of individuals presenting with acute illness or emergencies); congregate living facilities (nursing homes, college dormitories); K-12 schools; workplaces, particularly for large employers and settings where employees interact with the public (retail, grocery); and public institutions. Individuals could also be required to show proof of vaccination to enter stores, movies, in-restaurant dining, amusement parks, gyms, bars and other public places with substantial risk of transmission. We can think about these approaches as providing a strong incentive to get vaccinated. The degree of acceptability of these approaches will depend on the public's perceptions about COVID by the time vaccines are widely available; a long winter of new cases, full hospitals and more than 1,000 COVID-19 deaths per day

may shift perceptions of what is politically acceptable. Employers can legally mandate vaccination as a condition for in-person work provided there are exceptions for concerns related to disabilities and religious beliefs and reasonable alternatives to continue to work for those who refuse to vaccinate, such as working from home, wearing a mask, or working separately from other people.<sup>5</sup>

### **Use Public Endorsements from Trusted Leaders to increase Uptake.**

Once initial high-priority groups like health care workers receive the vaccine, states and cities could preferentially allocate the vaccine to employers contingent on leadership publicly vaccinating as an example for employees. This is an example of what psychologists would call a “credibility-enhancing display” whereby CEOs and other corporate leaders would visibly ‘set the example’ for their employees. Engaging in a recommended behavior is far more effective in convincing others than simply recommending that behavior. In addition, it may be useful for trusted national leaders, representing diverse demographic groups and political parties, to get publicly vaccinated.

**Provide priority access to people who sign up to get vaccinated** before vaccines are widely available. This strategy leverages the power of pre-commitments and shifting social norms in favor of getting vaccinated by highlighting the likely scarcity of vaccine doses in the early stages of distribution. Marketing research has highlighted that people tend to covet items that are difficult to obtain or that they perceive others being able to access first, particularly during the period in which a new product is introduced.<sup>6</sup> Before vaccines are widely available, people could be given the opportunity to sign up to receive the vaccine and would be prioritized in the order in which they signed up.

### **Transform individual vaccination decisions into a public act.**

Several approaches could be useful to signal vaccine acceptance, analogous to strategies used to promote voting (e.g., “I voted” stickers and social media testimonials of voting) and blood donation (e.g., “I donated” pins and coffee mugs that signal donor status).<sup>7</sup> People often take their cue of how to behave from the behavior of others, and social accountability (how others view a person’s actions) could be an important motivator. Social factors can also be leveraged by city and state health departments, civic organizations, and employers promoting the community benefit of vaccination. People who might not do something for themselves will often take that same action to benefit other people.

## **Implementation Considerations**

The roll-out of a COVID-19 vaccine comes at a unique time: The credibility and capacity of the Centers for Disease Control and Prevention (CDC) have been undermined, a new presidential administration will transition to power, and the U.S. is entering a third daunting surge of cases. Initially, the supply of vaccine will likely be sharply constrained. During this period, adherence to non-pharmaceutical Interventions (NPIs) such as masking and distancing will be critical. To this end, it will be important to frame the vaccine as part of a comprehensive pandemic response vs. the sole “savior” strategy that will result in a return to

normal life immediately and leads to people taking greater risks than they would should the prospect of an effective vaccine not exist.

Given the importance of moving quickly, a national entity similar to Operation Warp Speed is warranted to steer federal COVID-19 vaccine promotion efforts. This entity should include scientists from multiple disciplines (epidemiology, vaccine science, behavioral science, social marketing, communications) as well as vaccine program delivery experts. The team should represent a spectrum of political views to de-politicize pandemic response. It would be helpful if this entity could have significant decision-making and resource allocation authority to: Develop a national social marketing campaign; Disseminate vaccine promotion and service delivery guidelines for implementation by local immunization programs; and Provide training to physicians in communicating with patients about vaccination. In a recent Viewpoint, Goodman and colleagues provided answers to what are likely to be common questions patients may ask their clinicians about vaccines.<sup>8</sup> In addition, the team could conduct “infodemiology” surveillance to counteract misinformation propagated through social media; and Coordinate with the CDC and NIH on COVID-19 vaccine acceptance programs and research to rapidly enhance available evidence.

The development and distribution of safe and effective COVID-19 vaccines will be an extraordinary achievement. Vaccine acceptance must start with absolute and total transparency of the evidence that support safety and efficacy. Hopefully both the Advisory Committee on Immunization Practices, and the FDA Vaccines and Related Biological Products Advisory Committee will support the decision of the FDA regarding approval in any form of a vaccine. However, the potential for these vaccines to help halt the pandemic will be limited without comparable attention paid to traversing the behavioral “last mile” necessary to ensure vaccine acceptance and uptake. Several behaviorally-informed strategies, along with similar innovations in vaccine confidence and promotion, can and will help close that last mile to achieve a successful national COVID-19 vaccine program.

## References

1. U.S. Public Now Divided Over Whether To Get COVID-19 Vaccine. <https://www.pewresearch.org/science/2020/09/17/u-s-public-now-divided-over-whether-to-get-covid-19-vaccine/>. Pew Research Center. Sept. 2020.
2. National Academies of Sciences, Engineering, and Medicine 2020. Framework for Equitable Allocation of COVID-19 Vaccine. 10.17226/25917. Washington, DC: The National Academies Press ISBN: 978-0-309-68224-4.
3. Sunstein CR (2018). Sludge and ordeals. *Duke LJ*, 68, 1843.
4. Brewer NT, Chapman GB, Rothman AJ. Increasing Vaccination: Putting Psychological Science into Action. *Psychological Science in the Public Interest* 2017; Vol 18(3): 149–207. [PubMed: 29611455]
5. Ryan LL, Alexander L. A Vaccine is Coming: Can Employers Require Employees to Take it? *The national Law Review*. November 15, 2020. Volume X, Number 320. <https://www.natlawreview.com/article/vaccine-coming-can-employers-require-employees-to-take-it>
6. Stock A, Balachander S. The Making of a “Hot Product”: A Signaling Explanation of Marketers’ Scarcity Strategy. *Manage Sci*. 2005;51(8):1181–1192.
7. Gerber AS, Green DP, Larimer CW. Social Pressure and Voter Turnout: Evidence from a Large-Scale Field Experiment. *American Political Science Review*. 2008;102(1):33–48.

8. Goodman JL, Grabenstein JD, Braun MM. Answering Key Questions about COVID-19 Vaccines. JAMA October 16, 2020 doi:10.1001/jama.2020.20590

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