


access to health services.² It could regularly hold institutions and systems accountable through Section 1557 of the Affordable Care Act, which prevents federally funded entities from discriminating against people on the basis of age, color, disability, national origin, race, or sex.⁵ Any health care provider or state agency that receives funding from the Children's Health Insurance Program, Medicaid, or Medicare would then be subject to legal action if it discriminated against people from underserved communities.

Fourth, the administration should engage with the public. The executive order directs agency leaders to communicate with community organizations and civil rights groups.¹ But it doesn't specify plans for outreach to direct service providers or state and local officials who implement federal programs. Ignoring the input of these players would be a missed opportunity to learn from the people and organizations that provide federal services, benefits, and contracts. Nor does the order mention

 An audio interview with Dr. Aggarwal is available at NEJM.org

whether the results of equity assessments will be made public. Disparities researchers use methods such as community-based participatory research to involve various stakeholders; such approaches are critical for building trust, setting priorities, and fostering support for reforms. The National Institutes of Health involves members of the public in study sections and advisory councils, a mechanism that could be expanded to other agencies.

Biden's equity agenda will be effective only if it is inclusive at every step. To achieve this goal, the government can democratize data collection and analysis, hold agencies accountable by publicly disseminating findings, and develop cross-sector interventions to break cycles of systemic inequity. These strategies align with health disparities work focused on developing trust among underserved communities. According to the executive order, "advancing equity requires a systematic approach to embedding fairness in decision-making processes."¹ The government should strive for transparent processes while imple-

menting evidence-based policies against systemic racism.

Disclosure forms provided by the author are available at NEJM.org.

From Columbia University and the New York State Psychiatric Institute — both in New York.

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An Uncertain Public — Encouraging Acceptance of Covid-19 Vaccines

Gillian K. SteelFisher, Ph.D., Robert J. Blendon, Sc.D., and Hannah Caporello, B.A.

The potential for vaccines to interrupt U.S. transmission of Covid-19 depends not only on technical efficiency in vaccine distribution, but also on the willingness of a large proportion of the public to be vaccinated. Though there has been strong demand for the relatively small amount of vaccine available initially, main-

taining interest in vaccination is a longer-term challenge.

To understand public attitudes toward taking a Covid-19 vaccine and the factors likely to affect willingness to do so going forward, we examined 39 nationally representative, randomized polls with publicly available tabulations that were conducted between Au-

gust 2020 and February 2021 (see Supplementary Appendix, available at NEJM.org). Our framework provides a perspective different from that of much of the media reporting on individual polls and informs our recommendations for outreach efforts to encourage vaccine uptake — efforts in which we believe physicians can play an important role.

U.S. Public's Views of Covid-19 Vaccines.*	
Uptake	Percentage of Respondents
When [the coronavirus vaccine] becomes available to you, will you . . . ?†	
Get vaccine	63
Definitely get it	40
Probably get it	23
Not get vaccine	32
Probably not get it	11
Definitely not get it	22
Efficacy	
Among those who said they plan to get a vaccine against the coronavirus when it becomes available: Which of the following are reasons you would get a coronavirus vaccine?‡	
I want to protect my family	83
I want to protect myself	83
It would be the best way to avoid getting seriously ill from the coronavirus	78
I want to protect my community	76
It would allow me to feel safe around other people	75
Life won't go back to normal until most people are vaccinated	75
I have confidence in the vaccine development and approval process	58
It would allow me to go back to normal activities like work or school	52
My doctor recommends vaccines	38
I have a chronic health condition, such as asthma or diabetes, so it is important that I receive a coronavirus vaccine	31
Safety	
Among those who said they do not plan to get a vaccine against the coronavirus when it becomes available: Which of the following are reasons you would not get a coronavirus vaccine?§	
I would be concerned about side effects from the vaccine	71
I'm concerned about the development and approval process	57
I would be concerned about getting infected with the coronavirus from the vaccine	37
I'm not concerned about getting seriously ill from the coronavirus	24
The coronavirus outbreak is not as serious as some people say it is	16
I don't think vaccines work very well	15
I don't like needles	10
I am allergic to vaccines	5
I won't have time to get vaccinated	2
Trust in Sources of Vaccine Information	
How much do you trust each of the following sources for information about coronavirus vaccines? A great deal/Quite a bit¶	
Health professionals, including doctors, nurses, and pharmacists	58
Dr. Anthony Fauci	48
CDC	46
FDA	41
HHS	38
WHO	36
Joe Biden	33
Pharmaceutical companies	20
Donald Trump	16
News media	16

(Continued.)		
Views by Race/Ethnicity	Black	White
When [the coronavirus vaccine] becomes available to you, will you . . . ††		
Get vaccine	62	63
Definitely get it	31	46
Probably get it	31	18
Not get vaccine	31	32
Probably not get it	18	11
Definitely not get it	13	20
Confident (very/somewhat) that a coronavirus vaccine will have been properly tested for safety and effectiveness‡	67	76
Have a great deal of confidence that medical scientists will act in the best interests of the public**	33	43
Views by Political Affiliation	Republican	Democrat
When [the coronavirus vaccine] becomes available to you, will you . . . ††		
Get vaccine	44	81
Definitely get it	26	52
Probably get it	18	29
Not get vaccine	52	13
Probably not get it	13	7
Definitely not get it	39	6
Have a great deal of confidence that medical scientists will act in the best interests of the public ††	36	54
How much do you trust [insert] to provide reliable information about a Covid-19 vaccine? A great deal/A fair amount‡‡		
Your own doctor or health care provider	81	93
President Trump	78	7
FDA	62	81
CDC	57	88
Your local public health department	56	87
Dr. Anthony Fauci, the director of the NIAID	47	90
Your state government officials	47	77
Pharmaceutical companies	45	67
President-elect Joe Biden	23	93

* “Don’t know” and “Unsure” responses are not shown if they represented less than 6% of responses overall. Additional data appear in the Supplementary Appendix, available at NEJM.org. CDC denotes Centers for Disease Control and Prevention, FDA Food and Drug Administration, HHS Department of Health and Human Services, NIAID National Institute of Allergy and Infectious Diseases, and WHO World Health Organization.

† Data are from the January 10–13, 2021, responses of 1002 U.S. adults as reported by Washington Post/ABC News. Exact question wording was as follows: “When it becomes available to you, will you definitely get the coronavirus vaccine, probably get it, probably not get it or definitely not get it?” Unprompted responses of “Already got it” (3% total; <5% across groups) are not shown.

‡ Data are from the December 3–7, 2020, responses of 546 U.S. adults who said they plan to get a vaccine against the coronavirus when available as reported by the Associated Press/National Opinion Research Center (AP/NORC). Responses of “Other” (5%) are not shown.

§ Data are from the December 3–7, 2020, responses of 570 U.S. adults who said they do not plan to get a vaccine against the coronavirus when available as reported by AP/NORC. Responses of “Other” (13%) are not shown.

¶ Data are from the December 3–7, 2020, responses of 1117 U.S. adults as reported by AP/NORC.

|| Data are from the November 30–December 8, 2020, responses of 1676 U.S. adults as reported by Kaiser Family Foundation (KFF). Data represent responses of “Very confident” or “somewhat confident” to the question “How confident are you that when a coronavirus vaccine becomes available, it will have been properly tested for safety and effectiveness?”

** Data are from the responses of 12,648 U.S. adults as reported by Pew Research Center, November 18–29, 2020. Data represent responses of “A great deal” to the question “How much confidence, if any, do you have in each of the following to act in the best interests of the public?”

†† Groups include those who identify as leaning Republican or leaning Democrat.

‡‡ Data are from the November 30–December 8, 2020, responses of 1676 U.S. adults as reported by KFF.

Polls suggest that much of the U.S. public is currently undecided about whether to take a Covid-19 vaccine. This point is often overlooked, since interpreters of several recent polls have predicted that a majority will get vaccinated.¹ But these interpretations are missing an important detail: reporting of poll results often involves collapsing various categories of responses. For example, reporting combines people who say they will “definitely” get vaccinated (40%) with those who say they “probably” will (23%) (see table). Polls using other wording reveal similar patterns, with substantial proportions of respondents indicating that they are “somewhat likely” to take a vaccine, for example. But evidence from political polling suggests that people who say they will “probably” or are “somewhat likely” to take an action do not always do so.² Moreover, many people, when offered the choice, say they are “not sure” or that they will “wait until it has been available for a while to see how it is working for other people.” Thus, though there is potential for a majority of Americans to take Covid-19 vaccines, many people are apparently still making up their minds. Information they receive in the next few months could determine their decisions. To help motivate the public, we believe information should account for three central features of public opinion evident in these polls.

First, although the broader literature on Covid-19 vaccine adoption in the United States indicates that perceived effectiveness is an important motivator, poll findings warn that public perceptions of effectiveness may not align with expert views. In par-

ticular, the public may expect that an effective Covid-19 vaccine means not only strong protection against the virus, but also immediate changes in their daily experience. Indeed, when asked about reasons they would take the vaccine, many people said it would allow them “to go back to normal activities like work or school” (52%) or “feel safe around other people” (75%). Such perceptions may conflict with expert warnings that getting a vaccine — however effective it may be in preventing infection — does not warrant a return to normal.

Second, and also in keeping with other research on Covid vaccine uptake in the United States, polling shows that safety is a key consideration in individual decision making. Safety-related issues are consistently the top reasons for hesitancy regarding Covid-19 vaccination cited in polls, with 71% of respondents in one recent poll, for example, citing concerns about side effects. However, despite scholarship emphasizing the role of trust in institutions to provide relevant information, polls suggest that sources of technical information about safety are not greatly trusted. Specifically, there is limited trust in the media or pharmaceutical companies to provide Covid-19 vaccine information: as few as 16% and 20% of respondents, respectively, say they have “a great deal/quite a bit” of trust in these organizations to provide such information. The public also has only moderate trust in information provided by the Food and Drug Administration. More people, however, trust their own doctor or even health professionals as a group. This finding is consistent with polling

about other health information, which reveals that doctors are frequently more trusted or viewed more positively than other sources, including elected officials, government agencies, and medical scientists.

Third, willingness to be vaccinated varies among U.S. communities. Black adults are less likely than White adults to say they will take a Covid-19 vaccine. In a recent poll, 31% of Black adults as compared with 46% of White adults said they would “definitely” get vaccinated. In the context of what is known about well-justified distrust among Black adults owing to historical and current racism in the U.S. biomedical enterprise,³ polling provides insights about how this distrust plays out in relation to Covid-19. For example, Black adults are less confident than White adults that vaccines have been properly tested for safety (67% vs. 76%), and less confident that medical scientists act in the public’s best interest (33% vs. 43%).

For different reasons, though also related to distrust, Americans who identify as Republicans are less likely than Democrats to say they will get vaccinated. A quarter of Republicans (26%), as compared with half of Democrats (52%), say they “definitely” will. This finding reflects a more recent polarization in the United States that affects responses to nearly every facet of contemporary policy.⁴ Regarding Covid-19, polls show that Republicans have less confidence than Democrats do that medical scientists will act in the public’s best interest (36% vs. 54%), and less trust in every source of vaccine information polls have asked about, with the

exception of former President Donald Trump. Republicans thus have had little trust in President Joe Biden regarding such information (23% vs. 93%).

Having explored multiple polls, we believe that there is great potential for public willingness to receive Covid-19 vaccines but that effective public education and outreach are needed to maximize the proportion of the population that will do so quickly. We also believe that clinical physicians, rather than pharmaceutical companies, political leaders, or even medical scientists, should be at the fore of education and outreach strategies. Featuring clinicians in messaging is particularly important given that many people will not see their own physician when making vaccination decisions: current vaccine policy and cold-chain logistics mean that people will largely be attending mass-vaccination clinics. To reach communities that are less trusting of vaccine efforts, outreach should be led by, or should meaningfully incorporate, physicians reflecting the diversity of the relevant communities. Practically, this recommendation means that Black physicians, including those affiliated with historically Black medical institutions, should have a key voice. Similarly, physicians from well-respected medical institutions in Republican-leaning states should be incorporated into efforts in those states.

Assuming that the vaccines continue to have strong safety

and efficacy profiles, vaccination programs can emphasize that message. Clinicians can also provide information about mitigating risks for patients with allergies or chronic conditions, which may affect people's concerns about safety. At the same time, the media, including social media, may damage perceptions of vaccine safety by reporting frequently on the small number of people who experience serious side effects.⁵ It is therefore important to highlight for reporters as well as the public the relative rarity of these side effects.

Finally, for many people who want a vaccine, the motivation to "return to normal" is paramount. Although we must explain that precautions such as mask wearing will still be needed in many circumstances until vaccine adoption is widespread, leaders who wish to motivate vaccine adoption can balance such warnings with positive messages about how vaccination can facilitate a return to activities such as seeing friends and family or working in an office. These messages are especially important in relation to vaccines that require two doses, to avert drop-off before the second dose.

Such broad-strokes guidance will need to be adapted to state and local contexts, given variation in cultural contours even within particular demographic groups. Where possible, approaches should leverage additional polling and qualitative data comparing sub-

groups such as younger and older Black adults. Moreover, wherever possible, approaches should be customized to the group that is undecided within a particular population. Nonetheless, we believe that these broad lessons from polling can guide the large-scale messaging efforts needed at the national level to help motivate a large fraction of the public to receive Covid-19 vaccines.

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From the Department of Health Policy and Management, Harvard T.H. Chan School of Public Health, Boston.

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