

*Embargoed for release after 12:01 a.m. Monday, Nov. 23, 2020*

**November 2020**

# **COVID Collaborative Survey: Coronavirus Vaccination Hesitancy in the Black and Latinx Communities**

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## I. Executive summary

Surveys have documented disproportionate disinclination among Black people in the United States to be vaccinated against the novel coronavirus – a cause of substantial concern for public health professionals given the Black population’s high rates of infection, hospitalization and death from COVID-19. This study delves deeply into these compunctions, relying on an unusually large, random national sample of Black Americans, a review of the literature on vaccine uptake and consultation with experts in the field.

Confirming previous findings, fewer than half of Black adults, 48 percent, say they probably or definitely would get a coronavirus vaccine if it were available for free – including just 18 percent who definitely would get vaccinated. Among Latinx adults, interviewed for comparison, far more likely would get vaccinated, 66 percent, including 31 percent definitely.

Safety and trust concerns are pervasive in both groups – but their higher levels among Black people are key in these differing vaccination uptake intentions:

- Just 14 percent of Black adults completely or mostly trust that a vaccine will be safe, compared with 34 percent of Latinx people.
- Eighteen percent of Black people express that level of trust in its effectiveness, compared with 40 percent in the Latinx community.
- Black adults are nearly 20 percentage points more skeptical than Latinx people that a vaccine will be adequately tested for safety and effectiveness specifically in their own racial or ethnic group.
- Views of vulnerability differ sharply. Even though both groups have comparatively high risks of infection, just 33 percent of Black adults think it’s at least somewhat likely that they’ll catch the coronavirus, compared with 52 percent of Latinx adults.

Race and ethnic identities inform some of these attitudes, as does trust in government generally and in the vaccination development process specifically. Concerningly, in addition, three-quarters of Black and Latinx adults alike say they would be less likely to get the vaccine if it were approved on an emergency-use basis without the usual review process by the U.S. Food and Drug Administration.

Other concerns also are shared: About eight in 10 Black and Latinx adults alike think it’s at least somewhat likely they’d experience side effects if vaccinated; about six in 10 think that if side effects occurred, they would be at least somewhat severe. And trust in various actors in vaccine development is tepid at best in both groups, especially so among Blacks.

Some bright spots emerge. Sizable majorities of Black (64 percent) and Latinx (75 percent) people alike think the eventual coronavirus vaccine will be at least somewhat effective in

preventing infection. And at least seven in 10 in each group think it will be at least somewhat effective in reducing symptoms.

The academic literature long has identified lower rates of vaccine uptake among Black people than other Americans. (See Appendix D.) With respect to the seasonal flu, this disparity is connected to worries about vaccine safety, prevalent distrust, racial identities and experiences of discrimination, among others (e.g. Freimuth et al. 2017; Quinn et al. 2018). This survey builds upon these and other findings in the context of the coronavirus pandemic.

The study's sample of 1,050 Black adults allows for detailed analysis of their vaccination hesitancy. (The Latinx sample, conducted for comparison, is among 258 individuals.) Interviews were conducted Sept. 1-15, 2020, via the Ipsos KnowledgePanel®, whose members are randomly invited to participate in surveys online. The study was produced and analyzed for the COVID Collaborative, a nonprofit focused on helping state and local governments combat the pandemic, by [Langer Research Associates](#).

In statistical analysis called regression, we identify key predictors of intended coronavirus vaccine uptake among Black and Latinx adults, finding that trust in the safety of the vaccine is by far the strongest predictor for both groups. Accordingly, in a subsequent analysis, we model trust in vaccine safety, finding that the leading predictor is confidence in the institutions involved in the vaccine production and delivery process. We next analyze predictors of trust in the vaccine process; here, the two strongest factors are trust in the government to look out for the interests of Black or Latinx people and perceived social pressure to get vaccinated.

These findings are developed throughout this report, followed, illustratively, by direct quotations from survey respondents expressing their skepticism toward a coronavirus vaccine. Implications for communications to encourage uptake are explored in our conclusions and recommendations.

## **II. Acknowledgments**

This project was developed in consultation with the following individuals, who generously contributed their time and expertise:

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The project manager and lead author of this report is Steven Sparks, Ph.D., research analyst at Langer Research Associates; with Allison De Jong, research analyst; Christine Filer, Ph.D., senior research analyst; and Gary Langer, project director. All data differences reported here are significant at the 95 percent confidence level, save those described as “slight” differences, which are significant at 90 percent confidence.

Full materials relating to this study, including this report, the survey questionnaire, data tables and the full dataset in .sav and .csv formats, are archived in the open-access SEAN COVID-19 Survey Archive, operated in support of the Societal Experts Action Network of the National Academies of Sciences, Education and Medicine in collaboration with the National Science Foundation. At <https://covid-19.parc.us.com>, enter “COVID Collaborative” in the Project search field.

### III. Predicting intended coronavirus vaccine uptake

Our models identifying predictors of intended coronavirus vaccine uptake, informed by the literature, include variables accounting for demographics, health care access and quality, racial and ethnic identities, experience of discrimination and psychosocial factors relating to vaccines and the coronavirus. (Abbreviated tables are shown below. See Appendix B for full model tables and index construction.) Among the results:

<b>Top predictors of intention to get a coronavirus vaccine</b>	
	<b>Black adults</b>
<b>Trust that vaccine will be safe</b>	0.42
<b>Subjective norm of getting vaccinated</b>	0.19
<b>Trust that vaccine will be effective</b>	0.13
<b>Moral norm of getting vaccinated</b>	0.10
	<b>Latinx adults</b>
<b>Trust that vaccine will be safe</b>	0.43
<b>Trust that vaccine will be effective</b>	0.21
<b>Sense of belonging to racial community</b>	0.17
<b>Flu vaccine frequency</b>	0.14
<b>Perceived vaccine risk</b>	-0.14

Standardized coefficient estimates are from ordinary least squares regression. See Appendix B.

- For Black people, top significant predictors include trust that the vaccine will be safe and effective and perceived norms surrounding vaccination. Additional predictors include perceived disease risks and vaccine risks, the strength of racial identities, knowledge of the Tuskegee Syphilis Study, previous flu vaccine uptake, partisanship, sex, age and education. The included variables explain a broad 64 percent of the variance in intended coronavirus vaccine uptake among Black adults.

- For Latinx adults, significant predictors also include trust in the vaccine’s safety and effectiveness, the strength of ethnic identities, perceived disease risks and vaccine risks. In this population level of trust in the government to look out for the best interests of Latinx people and living in the suburbs also are significant. Similar to the analysis among Black people, the included variables explain a substantial 61 percent of the variance in intended uptake.

*Safety and effectiveness*

Safety concerns loom large; as shown, trust in the vaccine’s safety is the strongest predictor of intended uptake for Black and Latinx adults alike. Illustratively, about half of Black adults have not much or no trust that a coronavirus vaccine will be safe; among them, only 15 percent definitely or probably would get the vaccine. By contrast, though just 14 percent of Black people completely or mostly trust that it will be safe, nearly all in this group (96 percent) definitely or probably would get vaccinated. Results are similar for Latinx people. (Going forward, we use the term “would get vaccinated” for those who say they definitely or probably would do so.)

<b>Vaccine uptake by trust that the coronavirus vaccine will be effective</b>		
<i>Among Black adults</i>		
	<b>Definitely or probably would get the vaccine</b>	<b>Definitely or probably would NOT get the vaccine</b>
<b>Completely or mostly trust (18%)</b>	92%	8%
<b>Somewhat trust (39%)</b>	67	33
<b>Not much/not at all trust (43%)</b>	12	88

Doubts about effectiveness are another barrier. Roughly four in 10 Black adults have not much or no trust that a coronavirus vaccine will be effective, and just 12 percent in this group would get vaccinated. By contrast, while just 18 percent of Black people completely or mostly trust in the effectiveness of a coronavirus vaccine, 92 percent in this group they’d likely get it. Wide gaps also are apparent among Latinx people.

In a related consideration, 87 percent of Black adults and 80 percent of Latinx adults say the possibility that early versions of the vaccine are less effective than later versions is a legitimate concern. Indeed, as detailed below, large majorities are inclined to wait before getting vaccinated.

<b>% extremely or very important in one's decision to get vaccinated</b>		
	<b>Black adults</b>	<b>Latinx adults</b>
<b>Confidence in the vaccine's safety</b>	78%	76%
<b>Confidence in the vaccine's effectiveness</b>	75	72
<b>The advice of your healthcare provider</b>	59	58
<b>Its being available for free</b>	56	61
<b>Convenience in where you can get it</b>	55	62
<b>The advice of people you trust</b>	52	58

% extremely or very important in one's decision to get vaccinated		
	Black adults	Latinx adults
Other people in your community getting vaccinated	42	60

Underscoring these views, roughly three-quarters of Black and Latinx people alike say their confidence in the vaccine’s safety is extremely or very important in their decision about whether to get vaccinated; about as many say so about the confidence in its effectiveness. Fewer say the same about the advice of their health care provider, the vaccine being free, convenience in getting it or the advice of people they trust, each between 52 and 62 percent. And well fewer than half of Black adults, 42 percent, say that other people in their community getting vaccinated is highly important in their decision.

### *Worries and likelihood*

Countering worries about the safety and effectiveness are concerns about catching the virus. Logically, those who perceive greater risk are more apt to say they would get the vaccine. We measure perceived disease risk with an index of two variables: level of worry about catching the virus personally and level of worry about close family or friends catching it. (See Appendix B.) Among notable results:

- Six in 10 Black adults and seven in 10 Latinx adults are at least somewhat worried that they might catch the virus (though fewer, as noted above, perceive this as likely; worry and perceived likelihood are different metrics). More in each group are worried about the possibility that their close friends or family members might catch it (76 percent of Black people and 82 percent of Latinx people).
- Among Black people who are at least somewhat worried about personally catching the virus, 54 percent would get the vaccine. For those less worried, it’s 39 percent. Those worried about close friends and family also are more apt to intend to get the vaccine than those less worried.
- In separate questions, for Black people who think it’s likely they’ll catch the virus and if so symptoms would be at least somewhat severe, 58 percent would get the vaccine. That compares with 47 percent of those who think it’s unlikely they’ll catch it and 44 percent of those who think it’s likely but wouldn’t be severe.

### *Perceptions of norms*

Identifying a possible focus for communications, perceptions of norms about vaccines also are significant predictors of uptake intention, specifically among Black people:

- Perception of a moral norm for getting the vaccine is powerful. Thirty-six percent of Black adults believe people have a responsibility to get vaccinated to help stop the spread

of the virus; in this group, 78 percent would do so. More, 62 percent, believe community considerations should not come into it – and just 31 percent of this group likely would get the vaccine.

- Subjective norms – or, perceived social pressures – also are influential. A third of Black adults think all or most of the people close to them would want them to get the vaccine; of those, nearly nine in 10 would get it. More, half, think that only a few or none of the people close to them would want them to get it, and in this group only about two in 10 in would get the vaccine.

Leveraging perceived social pressure, while important, may be challenging to achieve. Just 26 percent of Black people would recommend to friends and family that they get vaccinated. (More Latinx people but still fewer than half, 43 percent, would do so.) About one in 10 in each group would recommend not getting vaccinated; the rest would make no suggestion.

Among Black adults, those most likely to recommend that others get vaccinated are those who completely or mostly trust that the vaccine will be safe (75 percent would recommend it) or effective (67 percent), those who trust five to six of the of the institutions involved with vaccine production (67 percent) and those who think that all or most of the people close to them would want them to get the vaccine (59 percent).

### *Race/ethnicity*

Issues of race and ethnicity pose a critical challenge, particularly for uptake among Black people. Underscoring the weight of history and enduring injustices, compunctions are rooted in experiences of inequality:

- Two-thirds of Black adults believe the government can be rarely or never trusted to look out for the interests of the Black community. Just four in 10 in this group would get the vaccine, compared with 63 percent of those who think the government can be trusted at least occasionally to look out for their interests.
- Reflecting the unique and difficult history of Black Americans and medical practice, these patterns are substantially muted in the Latinx community. Among the 43 percent who believe the government can be rarely or never trusted to look out for the best interests of Latinx people, six in 10 still would get the vaccine. It's slightly higher, 71 percent, among those who think the government can be trusted at least occasionally.

In terms of racial identity, intended uptake is lowest among Blacks who place especially high importance on being Black to their self-image, or who feel a high sense of belonging to the Black community; those in the middle on both measures are more receptive to a vaccine. Latinx adults differ; their intended uptake is significantly higher among those with an extremely or very strong sense of belonging to the Latinx community and who those who say their ethnicity is highly important in their self-image.

### *Demographic predictors*

Among demographic variables, age is positive predictor and being a woman is a negative predictor of intended vaccine uptake among Black Americans. About six in 10 Black people age 65 or older would get vaccinated; that falls to four in 10 of those under 40. And 56 percent of Black men would get the vaccine, vs. four in 10 Black women.

Knowledge of the Tuskegee Syphilis Study is a negative predictor. This is linked to education: While 54 percent of Black people have heard or read a great deal or good amount about the study, that ranges from seven in 10 college graduates to 44 percent of those with a high school degree or less. Lastly, educational attainment, while not a predictor in more limited models, is a negative predictor in the full model, when vaccine-related views such as perceived risks, trust and norms are included.

### *Other correlates of intended uptake*

Highlighting safety concerns, eight in 10 Black adults would wait to get the vaccine rather than getting it as soon as it's available; just 19 percent would get it as soon as possible. About seven in 10 Latinx individuals also would wait. (Those who definitely would not get vaccine were not asked this question.)

Among those who would wait before getting it, Black and Latinx people are in broad agreement as to why: Roughly seven in 10 in each group want to see how the vaccine works in other people first. Fifteen percent of Black people and 18 percent of Latinx people instead say they'd wait to let high-risk people go first. One in 10 in each group volunteered different reasons for waiting, with multiple comments referencing safety or side effects, effectiveness, testing and trust. (See supplemental Appendix E.)

In a further concerning result, sizable percentages say they would be less likely to get the vaccine under each of three scenarios tested. That means vaccine uptake among Black and Latinx people may face additional barriers as the details of a coronavirus vaccine become clearer. (Those who would definitely not get the vaccine were not asked about these conditional scenarios.) In detail:

- Further echoing issues of safety, three-quarters of Black and Latinx adults alike would be somewhat less likely (three in 10) or much less likely (more than four in 10) to get the vaccine if it were approved on an emergency use basis without the usual review process by the FDA. This would make no difference to about a quarter in each group.
- Convenience matters, albeit to a lesser extent. About a quarter of Black and Latinx people would be less likely to get the vaccine if it required two shots at different times instead of just one injection. That includes one in 10 in each group who would be much less likely to get vaccinated. Still, for roughly three-quarters, this would make no difference.

In a separate question, majorities both of Latinx adults (62 percent) and Black adults (55 percent) say that convenience in where they can get the vaccine is extremely or very important to them in deciding whether to get it.

- Privacy also may play a role. If required to provide their name, address and telephone number to be vaccinated, two in 10 Black people and a quarter of Latinx people would be less likely to get the vaccine. Latinx adults (12 percent) are slightly more apt than Black adults (7 percent) to say this would make them much less likely to get the vaccine.

#### **IV. Predicting trust in coronavirus vaccine safety**

As noted, views of the vaccine's safety are the leading factor in intention to get vaccinated – and these concerns are substantial:

- As noted, among Black adults, 14 percent completely or mostly trust that the vaccine will be safe. A third trust its safety somewhat; for about half, it's not so much (25 percent) or not at all (27 percent). More Latinx adults, but still just 34 percent, completely or mostly trust its safety.
- Seven in 10 Black adults are not so (34 percent) or not at all (37 percent) confident that the vaccine will be tested adequately for safety and effectiveness specifically among Black people. Fewer Latinx people, but still about half, doubt it will be adequately tested among members of their ethnic community.
- Nine in 10 Black people call the possibility of the vaccine itself making people sick a legitimate concern. Seventy-three percent of Latinx people say the same.
- About eight in 10 Black adults call it a legitimate concern that people in their community might get less-safe versions of the vaccine. Sixty-four percent of Latinx adults agree.
- More broadly, just 26 percent of Black people trust the federal government at least somewhat, vs. half of Latinx people.

#### *Trust in the process and subjective norms*

Given its importance in intended uptake, we used regression analysis to identify predictors of trust that a coronavirus vaccine will be safe. Controlling for demographics, health care access and quality, racial and ethnic identities, experiences of discrimination and psychosocial attitudes about vaccines and the coronavirus, the two strongest predictors among Black and Latinx adults alike are trust in the vaccine process and the subjective norm of vaccination – again, measured by respondents' expectations that people close to them would want them to get the vaccine.

- The strongest predictor in both groups, trust in the vaccine process, includes respondents' trust in six entities involved in producing or distributing the vaccine: scientists working to create and test it, drug companies doing the same, Dr. Anthony Fauci of the National

Institute of Allergy and Infectious Diseases, the FDA, the Trump administration and pharmacies and walk-in clinics where people can get vaccinated.

Ten percent of Black adults completely or mostly trust five or six of these items; among them, 96 percent trust at least somewhat that a coronavirus vaccine will be safe. It's fewer, but still 78 percent, of those who trust three to four of the entities (23 percent of all Black people). That falls to just 41 percent of those trusting one to two of them (35 percent overall) and 23 percent of those not trusting any (32 percent overall). Wide gaps also exist among Latinx adults.

<b>Trust in coronavirus vaccine safety by trust in the vaccine process</b>		
<i>Among Black adults</i>		
	<b>Trust somewhat or more that a vaccine will be safe</b>	<b>Trust not much/not at all that a vaccine will be safe</b>
<b>Completely/mostly trust five to six entities (10%)</b>	96%	4%
<b>Three to four entities (23%)</b>	78	22
<b>One to two entities (35%)</b>	41	59
<b>Zero entities (32%)</b>	23	77

- The second-most influential predictor for both groups, the subjective norm of getting the vaccine, again highlights the importance of the perceived attitudes of others. Among Black people who think that all or most of the people close to them would want them to get the vaccine, eight in 10 trust at least somewhat in its safety. This falls to 52 percent of those who think just some of the people close to them would want them to get the vaccine and a quarter of those who think it's fewer than that. Again, a similar pattern emerges for Latinx adults.

<b>Trust in coronavirus vaccine safety by the subjective norm of getting the vaccine</b>		
<i>Among Black adults</i>		
<b>Who would want you to get the coronavirus vaccine?</b>	<b>Trust at least somewhat that a vaccine will be safe</b>	<b>Trust not much/not at all that a vaccine will be safe</b>
<b>All or most people (32%)</b>	81%	19%
<b>Just some (19%)</b>	52	48
<b>Only a few or none (48%)</b>	25	75

*Further predictors of perceived vaccine safety*

Other significant predictors of Black people's trust in coronavirus vaccine safety include lower perceived vaccine risks, higher perceived disease risk, trust in the government to look out for the interests of Black people, fewer experiences of discrimination in health care, prior flu vaccine uptake and knowing someone who has been diagnosed with the coronavirus. The included variables explain 55 percent of the variance among Black adults in their trust that a vaccine will be safe.

For Latinx people, additional predictors also include lower perceived vaccine risks and higher perceived disease risks, as well as prior flu vaccine uptake, trust in the government to look out for the interests of Latinx people, living in the suburbs and holding liberal political views. Among Latinx adults, the included variables explain 64 percent of the variance in trust that a vaccine will be safe.

<b>Top predictors of trust that a vaccine will be safe</b>	
	<b>Black adults</b>
<b>Trust in the vaccine process</b>	0.34
<b>Subjective norm of getting vaccinated</b>	0.31
<b>Perceived vaccine risk</b>	-0.20
<b>Perception of racial fairness</b>	0.14
	<b>Latinx adults</b>
<b>Trust in the vaccine process</b>	0.34
<b>Subjective norm of getting vaccinated</b>	0.31
<b>Perceived vaccine risk</b>	-0.18
<b>Perceived disease risk</b>	0.17

Standardized coefficient estimates are from ordinary least squares regression. See Appendix B.

## V. Predicting trust in the vaccine process

As described, trust in the vaccine process – a measure of trust in six entities involved in producing or distributing the vaccine – is the strongest predictor of perceptions of whether the vaccine will be safe. Of those tested, Dr. Fauci earns the highest marks among Black adults, with 53 percent completely or mostly trusting him in the vaccination effort. A similar share of Latinx adults report this level of trust in Dr. Fauci and the scientists working to create and test the vaccine alike. Trust in scientists declines to 43 percent among Black adults.

Next is the FDA, with 29 percent of Black adults and 41 percent of Latinx people completely or mostly trusting it. Black adults also have less trust than Latinx people in pharmacies and walk-in clinics where people can get vaccinated, 27 vs. 35 percent, and drug companies, 19 vs. 27 percent. The Trump administration is highly trusted by about two in 10 Latinx adults and just 4 percent of Black people.

In a further regression, controlling for partisanship, ideology and demographic characteristics, being a woman or more ideologically conservative are negatively associated with trust in the vaccine process among Black adults. Positive predictors include being older, living in a rural area, having higher household income, having higher educational attainment and being a Democrat, though all but conservatism and being a Democrat fall out of significance in more comprehensive models described below. (See table in Appendix B.)

In the largest ideological difference, conservatives are much less apt than liberals to feel they can place high levels of trust in Dr. Fauci, 40 vs. 65 percent. They're also 14 points less likely than liberals to completely or mostly trust scientists and a slight 9 points less apt to trust the FDA. No

differences emerge in high trust of drug companies or pharmacies. High levels of trust in the Trump administration are in the single digits across the ideological spectrum; however, eight in 10 liberals and seven in 10 moderates don't trust it at all, vs. 55 percent of conservatives.

*Subjective norms, racial fairness and news consumption*

Adding more explanatory variables, such as doctor communication quality, experiences of racial discrimination, and perceived disease risk, the subjective norm of getting vaccinated emerges as one of the strongest predictors of trust in the vaccine process among Black and Latinx adults. Trust in the U.S. government to make decisions in the interests of one's own racial or ethnic group and more closely following news about the pandemic also are strong positive predictors.

Illustratively:

- Two-thirds of Black adults who think that all or most people close to them would want them to get the vaccine say they completely or mostly trust the scientists involved in the vaccine effort, compared with 27 percent of those who think that only a few or none of the people in their circle would want them to get vaccinated. Wide gaps also emerge in trust of pharmacies and walk-in clinics, Dr. Fauci, drug companies and the FDA. By contrast, high levels of trust in the Trump administration remain in the low single digits regardless of one's perceptions of the norm of getting vaccinated.
- Thinking that the U.S. government can be trusted to look out for the interests of one's race/ethnicity is positively associated with trust in the vaccine process. For example, among Black adults who think the government can be trusted to look out for the best interests of Black people at least occasionally, about half place high levels of trust in the FDA, compared with just 16 percent of those who say this never is the case. Those who think the government can be trusted at least occasionally also are 28 points more apt to place high levels of trust in pharmacies, 25 points more apt to trust scientists and drug companies alike, 15 points more apt to trust Dr. Fauci and 10 points for the Trump administration.
- Black adults who follow news and information about the pandemic very closely are a vast 52 points more likely to place high levels of trust in Dr. Fauci than those who say they are not following this news closely, 70 vs. 18 percent. Similarly, Black adults who are following COVID-19 news very closely are 21 to 26 points more apt to trust scientists, the FDA, pharmacies and walk-in clinics and drug companies in the vaccination effort than those who are not closely keeping up with the news. There are no differences by coronavirus news consumption in perceptions of the Trump administration.

<b>Top predictors of trust in the vaccine process</b>	
	<b>Black adults</b>
<b>Subjective norm of getting vaccinated</b>	0.23
<b>Perception of racial fairness</b>	0.23
<b>Closely following news about pandemic</b>	0.18

<b>Top predictors of trust in the vaccine process</b>	
	<b>Black adults</b>
<b>Flu vaccine frequency</b>	0.11
	<b>Latinx adults</b>
<b>Perception of racial fairness</b>	0.35
<b>Subjective norm of getting vaccinated</b>	0.21
<b>Closely following news about pandemic</b>	0.18
<b>Importance of race in self-image</b>	0.18

Standardized coefficient estimates are from ordinary least squares regression. See Appendix B.

### *Further predictors of trust in the process*

An additional positive predictor among Black and Latinx adults includes routinely getting vaccinated for the seasonal flu. Forty-two percent of Black and Latinx adults alike report getting vaccinated on an annual basis; about a quarter in both groups say they get it every few years or less and a third say they never get the flu vaccine. Among those who report getting vaccinated every year, about two-thirds completely or mostly trust Dr. Fauci, compared with 43 percent of Black people and 38 percent of Latinx adults who get the flu shot less often or never. Differences in trust emerge across the other items tested, again with the exception of trust in the Trump administration.

Vaccine knowledge is another positive predictor of trust in the vaccine process among Black adults. This is measured in an index of self-reported knowledge of how vaccines work overall and how they are created and tested. Four in 10 Black adults say they know a great deal or good amount about how vaccines work in general, vs. three in 10 who know only a little or nothing. However, just 29 percent say they know a great deal or good amount about how vaccines are created and tested; on this, 41 percent know little or nothing. (About three in 10 in both cases say they know “just some.”) Facilitating greater knowledge about vaccines among Black adults emerges as an avenue to boost trust in major elements of the vaccination effort.

The quality of communication from one’s healthcare provider also is a significant positive predictor among Black adults. Doctor communication quality is an index composed of three ratings from the respondent: How clearly their healthcare provider conveys information, encourages questions or the expression of concerns and explains things in an understandable way. (See Appendix B.) Better communication is likely to foster greater trust in healthcare overall, and by extension trust in professions working to develop and test a vaccine.

Negative predictors of trust in the vaccine process include the use of natural home remedies instead of medicine (used very often or often by 35 percent of Black adults and four in 10 Latinx people) and having personally been hindered by racial discrimination in one’s ability to get good health care.

One other factor, the importance of race in one’s self image, emerges as a positive predictor of trust in the vaccine process among Latinx adults. Those who say that being Hispanic or Latino is highly important in their self-image are 17 points more apt to have high levels of trust in the drug

companies creating and testing the vaccine, 14 points in the FDA and a slight 12 points in Dr. Fauci.

## **VI. Additional findings**

Eight in 10 Black adults say they're following news and information about the coronavirus pandemic at least somewhat closely, including about four in 10 very closely; results are similar among Latinx adults. As noted previously, following news and information about the pandemic closely is positively associated with greater trust in vaccination development and delivery.

Asked their main source of news about the pandemic, a plurality of Black adults, 30 percent, say they chiefly gather information from broadcast news such as ABC, CBS and NBC, followed by 20 percent from CNN or MSNBC, 11 percent from social media and 10 percent from public television or radio, with other sources in the low single digits.

A quarter of Latinx adults use public television or radio as their main source of news about the pandemic. Two in 10 use social media; 14 percent, broadcast news; 9 percent, CNN or MSNBC; 8, percent Fox News, with other sources such as news websites, newspapers, government websites and friends or family cited by 7 percent or fewer.

When it comes to personal experiences with COVID-19, majorities say they personally know someone who has been diagnosed with the coronavirus, with Latinx adults especially apt to say so. A broad 73 percent of Latinx adults know someone who has been diagnosed, as do 55 percent of Black adults. Seven in 10 Latinx adults know someone who had a mild case of the coronavirus, compared with 47 percent of Black adults.

Latinx adults also are more apt to say they know who someone who was seriously ill from the coronavirus but not hospitalized, 47 percent, vs. 32 percent of Black adults. About four in 10 adults in the Latinx community know someone who has died of the coronavirus, and a similar share know someone who has been hospitalized but did not die. A third of Black adults alike know someone who was hospitalized or someone who died from the virus.

More than four in 10 in each group have relatives age 65 or older whom they currently see on a regular basis. Three in 10 Black adults and 44 percent of Latinx adults have children under the age of 18 in their household. About nine in 10 in each group assess their personal health as either excellent or good, though 30 percent of Black adults and 25 percent of Latinx adults report having comorbidities.

Differences emerge in health care access and quality. About nine in 10 Black people have health insurance and 85 percent have a regular place where they usually go for health care; Latinx people are less apt to have insurance (74 percent), though are about as likely to have a regular place for care (81 percent). Black adults also are more likely than Latinx adults to have access to telecare (77 vs. 64 percent), to usually see the same doctor or healthcare team when they get healthcare services (86 vs. 79 percent) and to feel that they personally are known at least somewhat well at their regular place of care (84 vs. 77 percent). Similar shares in each group

have racial concordance with their doctor or someone on their healthcare team (40 and 44 percent for Black and Latinx adults). Two-thirds of Black adults have received healthcare services twice or more in the past 12 months; many fewer Latinx adults, 46 percent, say the same.

Black adults are more apt than Latinx adults to think racial discrimination interferes at least a good amount with the ability of those in their racial or ethnic community to get good health care, 74 vs. 55 percent. About two in 10 in each group people report that racial discrimination has interfered with their own ability to get good health care.

That said, satisfaction with the quality of communication from their healthcare provider is high in both groups. About seven in 10 Black adults say their provider does a very good or excellent job giving clear information, encouraging them to ask questions and express concerns and explaining things in a way they can understand. Roughly two-thirds of Latinx adults say the same.

## **VII. Respondents' voices**

In addition to the data reported here, this study opens a window onto a more personal side of vaccination hesitancy by including respondents' own voices. Those disinclined to get a coronavirus vaccine were invited to say why, in their own words. Nearly 550 answered, with comments ranging from brief dismissals to impassioned criticisms of the process, politics, the president and institutional racism. (See full comments in supplemental Appendix E.)

In all, 129 of these comments raised side effects, safety and risk. Essentially as many, 128, made direct reference to a lack of trust in the process or in key actors. Again about as many, 127, brought up the accelerated timespan for vaccine development, and an additional 69 referred specifically to inadequate testing. Sixty individuals questioned whether the vaccine would work or be effective. Fifty-eight mentioned Donald Trump or the government more broadly.

Other comments, while less numerous, are also striking, raising issues including racism and historical injustices, misunderstanding of how vaccines work, fear of harm, conspiracy theories, religious issues, preference for home remedies and general anti-vaccination attitudes.

On the accelerated process and potential risks:

*“The development and trials appear to be rushed because of politics. I wouldn't trust a vaccine that hasn't been tested thoroughly. I don't want to be a victim of side effects that may have been identified if the vaccine were thoroughly tested.”*

*“Too much haste in developing this vaccine. Politics is being put before people's health and safety.”*

*“The speed to get a vaccine approved is scary. Until enough research and testing is done, I won't feel safe.”*

*“The rush to develop a vaccine by companies who have never even developed vaccines leave room for errors and serious side effects.”*

*“It’s a rush vaccination and not truly tested for Black lives.”*

*“I don't trust the elected officials are listening to the scientists thus potentially making a vaccine ineffective and unsafe. It feels like certain politicians (namely President Donald J. Trump) are pushing this vaccine on the American people to try and score political points.”*

Other comments also spoke to specific skepticism about Trump’s role in the process:

*“The president has interfered too much and I don't trust that he is not behind manipulating decisions about drugs safety and readiness.”*

*“If Trump is still president, I won’t take it. I don’t trust anything he says. He’s told too many lies. If he is not, I’ll probably take it.”*

*“Too soon to trust any vaccine. The CDC and FDA have been undermined by Trump and can't be completely trusted.”*

*“I would not get it because the president is trying to rush it. I don’t know what’s in it or how it would effect me. No fast track vaccine for me!”*

Further remarks also were political in nature, speaking of distrust of the administration or the government if not Trump personally – sometimes in terms showing a deep sense of personal threat:

*“I am a black man and sometimes I don’t trust the government. Not in the times we live in now. Sorry.”*

*“I don't trust the current administration. I'm not sure if I would be taking a death injection.”*

*“If the vaccine was produced by rushed methods without the formal testing and protocols, I would wait until it is done. I don't want to be a guinea pig caused by political gains.”*

*“I am not a lab rat to experiment on.”*

*“It is too early and appropriate testing has not happened. I feel the vaccine is being rushed for political reasons and African Americans are especially vulnerable to abuses in the process. I am very pro-vaccination but the steps and protocols for approval must be followed.”*

Indeed, for some, the depth of distrust rises to the level of a perceived conspiracy, with visceral expressions of oppression:

*“I am BLACK. There will be NO injections of ANY Kind given to me or any of my family. Test it on the 1% and their kids first. They will NOT BE KILLING my family that way.”*

*“I am not confident that this really is a prevention for COVID-19. I feel like it could have other sinister or ulterior motives for African Americans.”*

*“I believe that redneck in the White House has plans to wipe out people of color and I wouldn't trust anything that was created on his watch.”*

*“Because it will leave when Trump does. I believe it to be induced for political reasons. Also, I no longer trust our government has my best interest as theirs. We have been enslaved by a psychopath.”*

Some respondents referred to historical abuses, including the infamous Tuskegee study:

*“The federal government has injected a vaccine to black people in the past which turned out to be a death warrant for black men.”*

*“Develop too quick and I still remember the free vaccines that was given to some Southern black people. It was all syphilis so I don't trust the government's vaccines.”*

*“I am reluctant to trust the current administration's oversight and commitment to the cure. USA does not have a good history of administering medicine to Black people in this country.”*

Not only Black people have these concerns. As one Latinx respondent said: *“It would have to be proven safe as an African-Americans have been used in the past as medical guinea pigs.”*

Comments that were focused on health and medicine, for their part, demonstrate some misunderstandings of how vaccines work, as well as preferences for home remedies:

*“I take vitamin C and other natural vitamins that help.”*

*“I'm afraid it may cause me to have the virus.”*

*“I'm not sick.”*

*“Because vaccines contain the virus and I do not want the virus in my body.”*

Conspiracy theories came up as well:

*“I think it's a way to either give me the virus or RFID chip me.”*

*“Because of Bill Gates he would like to track people.”*

*“Heard it will contain a chip.”*

Finally, a few respondents spoke of religious considerations; for example: *“I have a different belief of what could cure the virus and that is God.”*

Clearly no single effort can address the myriad objections to a vaccine expressed in these and other comments. Nonetheless, our modeling of the survey results does suggest paths forward, as covered in the next and final section of this report.

## **VIII. Conclusions and recommendations**

The results of this survey can inform efforts to encourage coronavirus vaccine uptake among Black and Latinx Americans. Foremost, safety concerns are pervasive, and trust in the safety of the vaccine is the strongest statistical predictor of intended uptake. Communications efforts must address those fears directly to build trust in the safety of the vaccine and in the institutions that oversee its development.

Enhancing greater knowledge of how vaccines are developed and how they work also are promising avenues. Frontline healthcare providers and the news media both can play important roles. Effective communication with care providers promotes trust in vaccine production and delivery. And trust likewise is related to following news and information about the pandemic.

The predictive power of moral and subjective norms highlights another focus for messaging. Black Americans who think that their friends and family would want them to get the coronavirus vaccine are much more likely to say they’ll do so; the same is true for those who perceive a personal responsibility to get vaccinated to help stop the spread of the virus in their community. Outreach efforts would be well-served to consider the influence of norms for intended vaccine uptake.

Crucially, messaging must be sensitive to the unique challenges and difficult history of Black Americans with respect to medical practices – and more broadly, experiences of discrimination and inequality. Among other key results, those who don’t think that the government can be trusted to look out for the interests of Black and Latinx people are less likely to trust that a coronavirus vaccine will be safe and less likely to trust the vaccine process. Any efforts to improve intended coronavirus vaccine uptake among Black Americans must address this challenging history and work to repair this trust.

Complicating the path forward are further issues of trust. When asked how much they feel they can trust various actors in the coronavirus vaccination effort, just 27 to 30 percent in each group at least mostly trust Black or Latinx religious leaders, community organizers and elected officials in their community. That drops to 13 percent of Black people and 19 percent of Latinx people when asked about trust in white elected officials in their community. Building greater trust with such potentially influential sources is another critical goal in encouraging vaccine uptake.

Finally, results underscore the importance of convenience and privacy in the vaccine distribution effort. As preparations move forward, failure to account for these considerations may result in uptake rates that are even lower than the level of intended vaccination identified by this survey.

## Appendix A: Topline data report

Topline survey results follow. Asterisks in columns indicate <0.5 percent.

1. How closely, if at all, are you following news and information about the coronavirus pandemic?

	--- More closely ----			----- Less closely -----			
	NET	Very	Somewhat	NET	Not so	Not at all	Skipped
9/15/20							
Blacks	80	38	42	19	15	5	*
Latinx	81	34	47	19	12	6	0

2. Which of these, if any, is your main source of news and information about the pandemic?

	--- 9/15/20 ---	
	Blacks	Latinx
Social media	11	19
Broadcast news (ABC, CBS, NBC)	30	14
FOX News	5	8
CNN or MSNBC	20	9
Public television or radio	10	26
Newspaper/newspaper websites	5	7
Other news websites	5	6
Government websites	4	2
Friends or family	4	5
None of these	6	5
Skipped	*	*

3. If a vaccine that protected you from the coronavirus was available for free to everyone who wanted it, how likely would you be to get it?

	----- Would get it -----			---- Would not get it ----			
	NET	Definitely	Probably	NET	Probably	Definitely	Skipped
9/15/20							
Blacks	48	18	30	52	28	24	0
Latinx	66	31	35	34	22	12	0

4. [IF WOULD NOT GET IT] Briefly, in your own words, what's the main reason you might not get a coronavirus vaccine?

See Appendix E.

5. [IF WOULD GET IT OR WOULD PROBABLY NOT GET IT] Which of these are you more likely to do?

	Get the vaccine as soon as it's available	Wait before getting it	Skipped
9/15/20			
Blacks	19	80	1
Latinx	27	72	1

6. [IF WOULD WAIT] Why would you wait - what's the main reason?

	See how it works in other people	Let high-risk people go first	Wait until it's easier to get	Other	Skipped
9/15/20					
Blacks	73	15	2	9	*
Latinx	68	18	5	10	0

Other responses provided in a separate attachment.

7. [ALL EXCEPT THOSE WHO DEFINITELY WON'T GET] If a coronavirus vaccine required you to get two shots at different times instead of just one shot, would that make (no difference to you) or would that make (you less likely to get vaccinated)?

	Makes no difference	---- Less likely ----			Skipped
		NET	Somewhat	Much	
9/15/20					
Blacks	72	27	17	11	*
Latinx	76	24	14	10	1

8. [ALL EXCEPT THOSE WHO DEFINITELY WON'T GET] If in order to get a coronavirus vaccine you have to provide your name, address and phone number, would that make (no difference to you) or would that make (you less likely to get vaccinated)?

	Makes no difference	---- Less likely ----			Skipped
		NET	Somewhat	Much	
9/15/20					
Blacks	77	20	13	7	3
Latinx	72	25	13	12	3

9. [ALL EXCEPT THOSE WHO DEFINITELY WON'T GET] If a coronavirus vaccine was approved on an "emergency use" basis without the usual full review process by the U.S. Food and Drug Administration (FDA), would that make (no difference to you) or would that make (you less likely to get vaccinated)?

	Makes no difference	---- Less likely ----			Skipped
		NET	Somewhat	Much	
9/15/20					
Blacks	25	74	31	43	1
Latinx	23	75	31	44	2

10. Overall, how much do you trust that a coronavirus vaccine will be safe?

	----- Trust more -----				----- Trust less -----			Skipped
	NET	Completely	Mostly	Somewhat	NET	Not much	Not at all	
9/15/20								
Blacks	14	2	13	34	51	25	27	0
Latinx	34	5	29	30	36	18	17	0

11. Overall, how much do you trust that a coronavirus vaccine will be effective?

	----- Trust more -----				----- Trust less -----			Skipped
	NET	Completely	Mostly	Somewhat	NET	Not much	Not at all	
9/15/20								
Blacks	18	2	16	39	43	23	19	0
Latinx	40	8	32	30	30	19	11	0

12. How confident are you that a coronavirus vaccine will be adequately tested for safety and effectiveness specifically among [Black/Hispanic or Latino] people?

	--- More confident --			---- Less confident -----			
	NET	Very	Somewhat	NET	Not so	Not at all	Skipped
9/15/20							
Blacks	28	6	23	71	34	37	1
Latinx	47	14	34	52	32	19	1

13. Do you think each of these is or is not a legitimate concern?

Black respondents - summary table

	Legitimate concern	Not legitimate concern	Skipped
a. Early versions of the vaccine being less effective than later versions	87	12	1
b. The possibility of the vaccine itself making people sick	89	11	1
c. People in your community getting less safe versions of the vaccine	78	21	1

Latinx respondents - summary table

	Legitimate concern	Not legitimate concern	Skipped
a. Early versions of the vaccine being less effective than later versions	80	18	2
b. The possibility of the vaccine itself making people sick	73	25	1
c. People in your community getting less safe versions of the vaccine	64	36	1

14. Generally speaking, how much do you trust the federal government in Washington?

	----- Trust more -----				----- Trust less -----				
	NET	Completely	Mostly	Somewhat	NET	Not much	Not at all	Skipped	
9/15/20									
Blacks	5	1	4	21	73	35	38	1	
Latinx	22	5	17	28	50	30	20	0	

15. How much do you feel you can trust each of these in the coronavirus vaccination effort?

Black respondents - summary table

	----- Trust more -----				--- Trust less ---				
	NET	Completely	Mostly	Some-what	NET	Not much	Not at all	Skip	
a. Scientists working to create and test the vaccine	43	11	32	35	22	13	9	*	
b. Drug companies working to create and test the vaccine	19	4	15	39	42	25	16	*	
c. Dr. Anthony Fauci of the National Institute of Allergy and Infectious Diseases	53	27	26	27	20	10	10	*	
d. The U.S. Food and Drug									

Administration (FDA)	29	6	23	40	30	18	12	*
e. The Trump administration	4	1	3	10	86	15	71	*
f. Your usual doctor or healthcare team (Skip if you don't have one)	52	22	31	25	16	8	7	7
g. Pharmacies and walk-in clinics where people can get vaccinated	27	6	21	40	32	19	13	1

Latinx respondents - summary table

	NET	Trust more Completely	Trust more Mostly	Some-what	NET	Trust less Not much	Trust less Not at all	Skip
a. Scientists working to create and test the vaccine	52	19	33	31	16	10	6	1
b. Drug companies working to create and test the vaccine	27	5	22	37	35	25	10	*
c. Dr. Anthony Fauci of the National Institute of Allergy and Infectious Diseases	50	24	26	30	19	11	9	*
d. The U.S. Food and Drug Administration (FDA)	41	11	30	34	24	17	8	1
e. The Trump administration	18	6	12	17	65	17	48	*
f. Your usual doctor or healthcare team (Skip if you don't have one)	53	20	33	26	13	8	5	8
g. Pharmacies and walk-in clinics where people can get vaccinated	35	9	27	42	23	17	5	*

16. How about these groups - how much do you feel you can trust each of these in the coronavirus vaccination effort?

Black respondents - summary table

	NET	Trust more Completely	Trust more Mostly	Some-what	NET	Trust less Not much	Trust less Not at all	None in my community	Skp
a. Black religious leaders in your community	27	6	20	35	27	17	10	11	1
b. Black community organizers in your area	30	6	24	38	21	14	7	10	2
c. Black elected officials in your community	27	5	22	42	21	12	9	9	1
d. White elected officials in your community	13	1	11	39	40	24	16	7	1

Latinx respondents - summary table

	NET	Trust more Compltly	Trust more Mstly	Some-what	NET	Trust less Not much	Trust less Not at all	None in my commty	Skip
a. Hispanic or Latino religious leaders in your community	29	8	22	32	28	19	8	11	0

b. Hispanic or Latino community organizers in your area	28	8	20	36	26	21	5	9	0
c. Hispanic or Latino elected officials in your community	28	8	20	39	24	16	8	9	0
d. White elected officials in your community	19	6	13	39	37	24	13	4	1

17. How likely do you think it is that you will catch the coronavirus?

	---- More likely ----			----- Less likely -----			Already caught it	Skipped
	NET	Very	Somewhat	NET	Not so	Not at all		
9/15/20								
Blacks	33	3	30	64	46	18	2	1
Latinx	52	8	43	44	35	8	4	1

18. [IF HAVE NOT ALREADY CAUGHT IT] Just your best guess, if you caught the coronavirus, how severe do you think it would be?

	---- More severe ----			----- Less severe -----			Skipped
	NET	Very	Somewhat	NET	Not so	Not at all	
9/15/20							
Blacks	52	13	38	47	35	11	2
Latinx	55	15	40	42	34	8	2

19. [IF ALREADY CAUGHT IT] How severe was your case of the coronavirus?

	---- More severe ----			----- Less severe -----			Skipped
	NET	Very	Somewhat	NET	Not so	Not at all	
9/15/20*							
Blacks	36	0	36	64	26	38	0
Latinx	10	0	10	90	58	32	0

\*note, n=20 Blacks, n=9 Latinx

20. [IF HAVE NOT ALREADY CAUGHT IT] How worried are you, if at all, about the possibility that you might catch the coronavirus?

	---- More worried ---			----- Less worried -----			Skipped
	NET	Very	Somewhat	NET	Not so	Not at all	
9/15/20							
Blacks	60	20	40	38	27	11	2
Latinx	69	29	40	30	23	7	1

21. [IF ALREADY CAUGHT IT] How worried are you, if at all, about the possibility that you might catch the coronavirus again?

	---- More worried ---			----- Less worried -----			Skipped
	NET	Very	Somewhat	NET	Not so	Not at all	
9/15/20*							
Blacks	52	14	38	48	21	27	0
Latinx	67	25	42	33	14	19	0

\*note, n=20 Blacks, n=9 Latinx.

22. Apart from yourself, how worried are you, if at all, about the possibility that some of your close friends or family members might catch the coronavirus?

	---- More worried ----			----- Less worried -----			
	NET	Very	Somewhat	NET	Not so	Not at all	Skipped
9/15/20							
Blacks	76	33	43	23	17	6	2
Latinx	82	46	36	17	13	4	1

23. If you got a vaccine for the coronavirus, how likely do you think it is that you would experience side effects?

	---- More likely ----			----- Less likely -----			
	NET	Very	Somewhat	NET	Not so	Not at all	Skipped
9/15/20							
Blacks	79	30	49	18	15	3	3
Latinx	82	36	46	17	14	4	1

24. If you had side effects, how severe do you think they would be?

	---- More severe ----			----- Less severe -----			
	NET	Very	Somewhat	NET	Not so	Not at all	Skipped
9/15/20							
Blacks	61	17	44	36	33	3	3
Latinx	58	18	41	40	37	3	2

25. How effective do you think a vaccine will be for these things?

a. Preventing people from catching the coronavirus

	--- More effective ---			---- Less effective ----			
	NET	Very	Somewhat	NET	Not so	Not at all	Skipped
9/15/20							
Blacks	64	11	53	35	26	9	1
Latinx	75	23	53	24	18	7	*

b. Reducing symptoms if people catch the coronavirus

	--- More effective ---			---- Less effective ----			
	NET	Very	Somewhat	NET	Not so	Not at all	Skipped
9/15/20							
Blacks	70	11	59	29	21	9	1
Latinx	77	23	54	22	16	7	1

26. Which of these would you be most likely to do:

	Recommend to your friends and family that they get vaccinated	Recommend to your friends and family that they not get vaccinated	Not make a suggestion either way	Skipped
9/15/20				
Blacks	26	12	61	1
Latinx	43	9	47	1

27. Of the people close to you, how many do you think would want you to get the coronavirus vaccine?

	----- More -----				----- Fewer -----			
	NET	All	Most	Just some	NET	Only a few	None	Skipped
9/15/20								
Blacks	32	13	19	19	48	20	28	1
Latinx	48	19	29	20	31	16	15	*

28. Which of these best fits your opinion, even if neither is exactly right?

	People have a responsibility to get vaccinated to help stop the spread of the virus in their community	Getting vaccinated is an individual choice; community considerations should not come into it	Skipped
9/15/20			
Blacks	36	62	2
Latinx	53	43	4

29. In deciding whether to get vaccinated for the coronavirus, how important is each of these to you:

Black respondents - summary table

	--- More important ---			Some-	- Less important -			
	NET	Extremely	Very	what	NET	Not so	Not at all	Skip.
a. Other people in your community getting vaccinated	42	19	23	30	27	14	13	1
b. Its being available for free	56	34	21	23	20	9	11	2
c. Convenience in where you can get it	55	27	28	23	20	10	10	2
d. The advice of your healthcare provider (Skip if you don't have one)	59	33	26	24	10	5	5	7
e. The advice of people you trust	52	27	26	28	18	11	7	1
f. Your confidence in the vaccine's safety	78	57	21	14	7	3	4	2
g. Your confidence in the vaccine's effectiveness	75	52	24	15	8	3	4	2

Latinx respondents - summary table

	--- More important ---			Some-	- Less important -			
	NET	Extremely	Very	what	NET	Not so	Not at all	Skip.
a. Other people in your community getting vaccinated	60	24	36	22	18	10	8	0
b. Its being available for free	61	34	27	21	17	7	10	1
c. Convenience in where you can get it	62	27	35	21	16	8	9	1
d. The advice of your healthcare provider (Skip if you don't have one)	58	28	31	20	10	4	6	12
e. The advice of people you trust	58	21	38	29	12	6	7	*

f. Your confidence in the vaccine's safety	76	48	28	13	10	6	4	1
g. Your confidence in the vaccine's effectiveness	72	40	32	18	8	4	4	2

30. How often, if at all, do you get a vaccine for the regular, seasonal flu?

	----- More often -----			- Less often or never --			
	NET	Every year	Every few years	NET	Less often	Never	Skipped
9/15/20							
Blacks	54	42	12	45	13	33	*
Latinx	55	42	13	44	11	33	1

31. How often, if at all, do you use natural home remedies instead of medicines to try to prevent or cure illnesses?

	----- More often -----				-- Less often or never ---			
	NET	Very often	Often	Sometimes	NET	Occasionally	Never	Skipped
9/15/20								
Blacks	35	18	17	26	38	20	18	*
Latinx	41	18	22	28	32	18	13	0

32. Do you personally know anyone who has been diagnosed with the coronavirus, or not?

	Yes	No	Skipped
9/15/20			
Blacks	55	44	*
Latinx	73	27	0

33. Do you personally know anyone in any of these categories?

Black respondents - summary table

	Yes, know someone	Do not know anyone	Skipped
a. Someone who had the coronavirus but was not seriously ill	47	53	*
b. Someone who was seriously ill with the coronavirus but not hospitalized	32	67	1
c. Someone who was hospitalized for the coronavirus and has not died from it	34	65	1
d. Someone who died of the coronavirus	34	65	1

Latinx respondents - summary table

	Yes, know someone	Do not know anyone	Skipped
a. Someone who had the coronavirus but was not seriously ill	69	30	1
b. Someone who was seriously ill with the coronavirus but not hospitalized	47	52	1
c. Someone who was hospitalized for the coronavirus and has not died from it	38	61	1

d. Someone who died of the coronavirus 39 61 1

34. How much do you feel you know about how each of these?

a. How vaccines work overall

	----- More -----				----- Less -----			
	NET	A great deal	A good amount	Just some	NET	Only a little	Nothing	Skipped
9/15/20								
Blacks	39	12	27	29	31	16	15	1
Latinx	37	10	27	37	25	15	10	2

b. How vaccines are created and tested

	----- More -----				----- Less -----			
	NET	A great deal	A good amount	Just some	NET	Only a little	Nothing	Skipped
9/15/20								
Blacks	29	11	18	30	41	19	22	*
Latinx	25	10	15	34	39	20	19	1

35. Do you have some form of health insurance or healthcare coverage, or not?

	Yes	No	Skipped
9/15/20			
Blacks	88	11	*
Latinx	74	24	1

36. Do you have a regular place where you usually go for health care, or not?

	Yes	No	Skipped
9/15/20			
Blacks	85	13	2
Latinx	81	17	2

37. Do you have access to telecare, that is, getting advice from a healthcare provider by phone or online, or not?

	Yes	No	Skipped
9/15/20			
Blacks	77	22	1
Latinx	64	34	2

38. [IF HAVE REGULAR PLACE] How well do you feel they personally know you at your regular place for health care?

	----- More well -----			----- Less well -----			
	NET	Very	Somewhat	NET	Not so	Not at all	Skipped
9/15/20							
Blacks	84	42	43	16	12	4	*
Latinx	77	30	48	23	18	4	0

39. When you get healthcare services, do you usually use the same doctor or healthcare team, or not?

	Yes	No	Skipped
9/15/20			
Blacks	86	13	1
Latinx	79	20	1

40. [IF USUALLY USE SAME DOCTOR OR HEALTHCARE TEAM] Is your doctor or someone on your healthcare team [Black/Hispanic or Latino], or not?

	Yes	No	Skipped
9/15/20			
Blacks	40	58	2
Latinx	44	54	2

41. About how many times in the past 12 months have you received healthcare services from a doctor, nurse or other healthcare provider?

	----- Fewer -----			----- More -----			Skipped
	NET	None	Once	NET	2-5 times	6+ times	
9/15/20							
Blacks	35	13	22	65	52	13	*
Latinx	54	21	33	46	36	10	0

42. When you receive healthcare services, how would you rate the way your healthcare provider handles the following items:

Black respondents - summary table

	----- Better -----			----- Worse -----				
	NET	Excellent	Very good	Good	NET	Not so good	Poor	Skip.
a. Giving you clear information to help you make decisions about your care	72	39	33	22	5	3	2	1
b. Encouraging you to ask questions or express your concerns	69	41	28	23	7	5	2	1
c. Explaining things to you in a way that you can understand	73	43	30	22	5	3	2	1
d. Understanding your cultural or ethnic background	58	30	28	28	12	8	4	2

Latinx respondents - summary table

	----- Better -----			----- Worse -----				
	NET	Excellent	Very good	Good	NET	Not so good	Poor	Skip.
a. Giving you clear information to help you make decisions about your care	66	31	35	29	5	4	1	0
b. Encouraging you to ask questions or								

express your concerns	63	31	32	27	10	8	2	0
c. Explaining things to you in a way that you can understand	70	37	34	25	5	4	1	0
d. Understanding your cultural or ethnic background	56	23	33	32	12	9	3	0

43. How often do you think the government in this country can be trusted to look out for the interests of [Black/Hispanic or Latino] people?

	----- More often -----				---- Less often ----			
	NET	Almost always	Often	Occasionally	NET	Rarely	Never	Skipped
9/15/20								
Blacks	8	4	5	24	67	39	28	*
Latinx	25	6	19	32	43	25	18	1

44. How much, if at all, do you think racial discrimination interferes with the ability of [Black/Hispanic or Latino] people to get good health care in this country?

	----- More -----				----- Less -----			
	NET	A great deal	A good amount	Just some	NET	Only a little	Not at all	Skipped
9/15/20								
Blacks	74	45	29	16	8	4	4	2
Latinx	55	28	27	26	17	8	9	2

45. How much, if at all, has racial discrimination interfered with your own ability to get good health care?

	----- More -----				----- Less -----			
	NET	A great deal	A good amount	Just some	NET	Only a little	Not at all	Skipped
9/15/20								
Blacks	22	9	13	20	57	14	43	1
Latinx	18	8	10	16	63	14	48	2

46. How important is being [Black/Hispanic or Latino] in your self-image?

	--- More important ---				----- Less important -----			
	NET	Extremely	Very	Somewhat	NET	Not so	Not at all	Skipped
9/15/20								
Blacks	78	57	21	10	9	4	5	3
Latinx	58	29	29	20	20	12	8	2

47. How strong is your sense of belonging to the [Black/Hispanic or Latino] community?

	----- Stronger -----				----- Less strong -----			
	NET	Extremely	Very	Somewhat	NET	Not so	Not at all	Skipped
9/15/20								
Blacks	68	45	23	18	12	7	5	2
Latinx	50	23	27	25	24	14	10	1

48. How much if anything have you heard or read about the federal government's Tuskegee Syphilis Study from 1932 to 1972, in which a group of Black men in Alabama who had syphilis were not told about it or treated for it?

	----- More -----				----- Less -----			
	NET	A great deal	A good amount	Just some	NET	Only a little	Nothing	Skipped
9/15/20								
Blacks	54	30	23	17	29	8	21	*
Latinx	13	9	4	13	73	7	66	1

49. How would you rate your own personal health?

	----- Better -----			----- Worse -----			
	NET	Excellent	Good	NET	Not so good	Poor	Skipped
9/15/20							
Blacks	88	14	74	12	10	2	*
Latinx	88	18	70	12	9	2	0

50. For statistical purposes only, do you have any of these: asthma, cancer, chronic lung disease, diabetes, heart disease or a weakened immune system?

	Yes	No	Skipped
9/15/20			
Blacks	30	69	1
Latinx	25	75	*

51. Do you have any children under the age of 18 currently living in your household?

	Yes	No	Skipped
9/15/20			
Blacks	31	68	1
Latinx	44	55	*

52. Do you have relatives age 65 or older who you currently see on a regular basis?

	Yes	No	Skipped
9/15/20			
Blacks	45	54	1
Latinx	43	57	*

## Appendix B: Index construction and modeling results

Models in this study include four index variables measuring doctor communication quality, vaccine knowledge, vaccine risk and disease risk.

The doctor communication quality index includes three items rating how well respondents' healthcare provider handles the following:

- Giving clear information to help people make decisions about their care
- Encouraging people to ask questions or express their concerns
- Explaining things in a way that people can understand

The vaccine knowledge index includes two items:

- How much people feel they know about how vaccines work overall
- How much people feel they know about how vaccines are created and tested

The perceived vaccine risk index includes two items:

- How likely people think it is that they would experience side effects if they got a vaccine for the coronavirus
- How severe people think side effects would be if they had them

The perceived disease risk index includes two items:

- How worried people are about the possibility that they might catch the coronavirus (those who already caught it were asked their level of worry about catching it again)
- How worried people are about the possibility that some of their close friends or family members might catch the coronavirus

Additionally, trust in the vaccine process is a measure of trust in six entities involved in producing or distributing the vaccine, coded as the number of those six entities that the respondent completely or mostly trusts. These include:

- Scientists working to create and test the vaccine
- Drug companies working to create and test the vaccine
- Dr. Anthony Fauci of the National Institute of Allergy and Infectious Diseases
- The U.S. Food and Drug Administration (FDA)
- The Trump administration
- Pharmacies and walk-in clinics where people can get vaccinated

Each were tested using Cronbach's alpha ( $\alpha$ ), a measure of internal consistency, with each showing moderate to strong reliability.

- Doctor communication quality,  $\alpha = .94$  (Black and Latinx)
- Vaccine knowledge,  $\alpha = .88$  (Black),  $\alpha = .86$  (Latinx)
- Vaccine risk,  $\alpha = .74$  (Black),  $\alpha = .65$  (Latinx)
- Disease risk,  $\alpha = .80$  (Black),  $\alpha = .84$  (Latinx)
- Trust in vaccine process,  $\alpha = .82$  (Black),  $\alpha = .80$  (Latinx)

**Table 1: Predicting intention to get a coronavirus vaccine among Black respondents**

	<i>M1</i>	<i>M2</i>	<i>M3</i>	<i>M4</i>
Female	<b>-0.18</b>	<b>-0.19</b>	<b>-0.17</b>	<b>-0.04</b>
Age	<b>0.15</b>	<b>0.13</b>	<b>0.13</b>	<b>0.07</b>
Rural	<b>0.09</b>	<b>0.08</b>	0.06	0.01
Suburban	<b>0.08</b>	<b>0.08</b>	0.06	0.03
Education	0.02	0.00	0.03	<b>-0.06</b>
Conservatism	<b>-0.12</b>	<b>-0.12</b>	<b>-0.14</b>	-0.03
Democrat	-0.01	-0.03	-0.01	<b>-0.07</b>
Republican	-0.01	-0.01	-0.06	<b>-0.05</b>
Chronic condition	<b>0.10</b>	<b>0.09</b>	<b>0.09</b>	0.03
Health insurance		<b>0.07</b>	<b>0.07</b>	0.04
Doctor communication quality		<b>0.09</b>	<b>0.09</b>	0.03
Knowledge of Tuskegee study			<b>-0.07</b>	<b>-0.08</b>
Perception of racial fairness			<b>0.22</b>	-0.02
Sense of belonging to racial community			<b>-0.13</b>	<b>-0.09</b>
Importance of race in self-image			0.06	<b>0.08</b>
Flu vaccine frequency				<b>0.09</b>
Perceived vaccine risk				<b>-0.05</b>
Perceived disease risk				<b>0.06</b>
Trust that vaccine will be safe				<b>0.42</b>
Trust that vaccine will be effective				<b>0.13</b>
Subjective norm of getting vaccinated				<b>0.19</b>
Moral norm of getting vaccinated				<b>0.10</b>
<i>Adjusted R-square</i>	<i>.08</i>	<i>.09</i>	<i>.16</i>	<i>.64</i>

p < 0.05 bolded. Standardized coefficient estimates are from ordinary least squares regression.

**Table 2: Predicting intention to get a coronavirus vaccine among Latinx respondents**

	<i>M1</i>	<i>M2</i>	<i>M3</i>	<i>M4</i>
Female	-0.07	-0.07	-0.06	0.00
Age	-0.06	-0.08	-0.07	0.01
Rural	0.12	0.07	0.07	0.05
Suburban	<b>0.24</b>	<b>0.22</b>	<b>0.21</b>	<b>0.12</b>
Education	-0.02	-0.07	-0.04	-0.09
Conservatism	<b>-0.15</b>	<b>-0.15</b>	-0.12	0.01
Democrat	0.06	0.07	0.06	-0.04
Republican	-0.02	-0.03	-0.07	0.02
Doctor communication quality		<b>0.26</b>	<b>0.22</b>	-0.01
Perception of racial fairness			<b>0.16</b>	<b>-0.11</b>
Sense of belonging to racial community			<b>0.23</b>	<b>0.17</b>
Importance of race in self-image			-0.06	<b>-0.13</b>
Flu vaccine frequency				<b>0.14</b>
Perceived vaccine risk				<b>-0.14</b>
Perceived disease risk				<b>0.12</b>
Trust that vaccine will be safe				<b>0.43</b>
Trust that vaccine will be effective				<b>0.21</b>
<i>Adjusted R-square</i>	<i>.07</i>	<i>.13</i>	<i>.18</i>	<i>.61</i>

p < 0.05 bolded. Standardized coefficient estimates are from ordinary least squares regression.

**Table 3: Predicting trust that a coronavirus vaccine will be safe among Black respondents**

	<i>M1</i>	<i>M2</i>	<i>M3</i>	<i>M4</i>
Female	<b>-0.17</b>	<b>-0.17</b>	<b>-0.15</b>	-0.03
Age	<b>0.10</b>	<b>0.09</b>	0.06	-0.01
Rural	<b>0.09</b>	<b>0.09</b>	0.06	0.02
Suburban	0.05	0.05	0.03	0.01
Income	<b>0.10</b>	<b>0.09</b>	<b>0.09</b>	0.02
Education	0.05	0.04	0.05	0.00
Conservatism	<b>-0.11</b>	<b>-0.11</b>	<b>-0.12</b>	-0.04
Democrat	0.03	0.02	0.03	-0.05
Republican	0.04	0.04	-0.01	0.00
Chronic condition	<b>0.08</b>	<b>0.07</b>	<b>0.07</b>	0.04
Health insurance		0.04	0.03	0.02
Doctor communication quality		<b>0.08</b>	0.04	-0.05
Knowledge of Tuskegee study			0.01	0.01
Perception of racial fairness			<b>0.36</b>	<b>0.14</b>
Sense of belonging to racial community			-0.04	0.02
Importance of race in self-image			-0.05	-0.01
Racial discrimination in health care (others)			<b>0.09</b>	0.02
Racial discrimination in health care (self)			<b>-0.08</b>	<b>-0.05</b>
Flu vaccine frequency				<b>0.08</b>
Perceived vaccine risk				<b>-0.20</b>
Perceived disease risk				<b>0.06</b>
Trust in vaccine process				<b>0.34</b>
Subjective norm of getting vaccinated				<b>0.31</b>
Knows someone diagnosed with COVID-19				<b>0.05</b>
<i>Adjusted R-square</i>	<i>.09</i>	<i>.09</i>	<i>.22</i>	<i>.55</i>

p < 0.05 bolded. Standardized coefficient estimates are from ordinary least squares regression.

**Table 4: Predicting trust that a coronavirus vaccine will be safe among Latinx respondents**

	<i>M1</i>	<i>M2</i>	<i>M3</i>	<i>M4</i>
Female	-0.10	-0.10	-0.07	0.00
Age	-0.04	-0.06	-0.07	-0.01
Rural	0.08	0.02	0.04	0.04
Suburban	<b>0.14</b>	<b>0.12</b>	<b>0.11</b>	<b>0.10</b>
Education	0.07	0.01	0.07	0.03
Conservatism	<b>-0.22</b>	<b>-0.21</b>	<b>-0.19</b>	<b>-0.09</b>
Democrat	0.06	0.07	0.10	-0.03
Republican	0.02	0.01	-0.07	0.03
Doctor communication quality		<b>0.30</b>	<b>0.22</b>	-0.04
Perception of racial fairness			<b>0.34</b>	<b>0.10</b>
Sense of belonging to racial community			<b>0.13</b>	0.06
Flu vaccine frequency				<b>0.12</b>
Perceived vaccine risk				<b>-0.18</b>
Perceived disease risk				<b>0.17</b>
Trust in vaccine process				<b>0.34</b>
Subjective norm of getting vaccinated				<b>0.31</b>
<i>Adjusted R-square</i>	<i>.08</i>	<i>.16</i>	<i>.27</i>	<i>.64</i>

p < 0.05 bolded. Standardized coefficient estimates are from ordinary least squares regression.

**Table 5: Predicting trust in the vaccine process among Black respondents**

	<i>M1</i>	<i>M2</i>	<i>M3</i>	<i>M4</i>
Female	<b>-0.14</b>	<b>-0.14</b>	<b>-0.12</b>	-0.05
Age	<b>0.16</b>	<b>0.15</b>	<b>0.11</b>	0.04
Rural	<b>0.08</b>	<b>0.07</b>	0.05	0.02
Suburban	0.05	0.05	0.03	0.04
Income	<b>0.08</b>	<b>0.07</b>	0.06	0.04
Education	<b>0.09</b>	<b>0.07</b>	<b>0.07</b>	0.04
Conservatism	<b>-0.10</b>	<b>-0.10</b>	<b>-0.11</b>	<b>-0.07</b>
Democrat	<b>0.14</b>	<b>0.11</b>	<b>0.13</b>	<b>0.08</b>
Republican	0.02	0.02	-0.02	-0.01
Health insurance		0.01	0.01	-0.02
Doctor communication quality		<b>0.18</b>	<b>0.15</b>	<b>0.08</b>
Knowledge of Tuskegee study			0.04	0.02
Perception of racial fairness			<b>0.31</b>	<b>0.23</b>
Sense of belonging to racial community			-0.06	-0.06
Importance of race in self-image			-0.07	-0.05
Racial discrimination in health care (others)			<b>0.10</b>	<b>0.07</b>
Racial discrimination in health care (self)			-0.06	<b>-0.06</b>
Flu vaccine frequency				<b>0.11</b>
Perceived disease risk				0.01
Subjective norm of getting vaccinated				<b>0.23</b>
Vaccine knowledge				<b>0.10</b>
Use of natural home remedies				<b>-0.09</b>
Closely following news about pandemic				<b>0.18</b>
<i>Adjusted R-square</i>	<i>0.11</i>	<i>0.14</i>	<i>0.23</i>	<i>0.36</i>

p < 0.05 bolded. Standardized coefficient estimates are from ordinary least squares regression.

**Table 6: Predicting trust in the vaccine process among Latinx respondents**

	<i>M1</i>	<i>M2</i>	<i>M3</i>	<i>M4</i>
Female	<b>-0.13</b>	<b>-0.13</b>	-0.09	-0.07
Age	0.05	0.02	0.00	0.03
Rural	0.10	0.05	0.07	0.07
Suburban	0.05	0.03	0.03	0.00
Education	<b>0.14</b>	0.07	<b>0.13</b>	<b>0.13</b>
Democrat	0.03	0.04	0.08	0.02
Republican	-0.07	-0.09	<b>-0.17</b>	<b>-0.14</b>
Doctor communication quality		<b>0.32</b>	<b>0.20</b>	0.02
Perception of racial fairness			<b>0.42</b>	<b>0.35</b>
Sense of belonging to racial community			-0.06	-0.11
Importance of race in self-image			<b>0.20</b>	<b>0.18</b>
Racial discrimination in health care (self)			-0.08	<b>-0.14</b>
Flu vaccine frequency				<b>0.15</b>
Perceived disease risk				0.07
Subjective norm of getting vaccinated				<b>0.21</b>
Closely following news about pandemic				<b>0.18</b>
<i>Adjusted R-square</i>	<i>.03</i>	<i>.12</i>	<i>.25</i>	<i>.38</i>

p < 0.05 bolded. Standardized coefficient estimates are from ordinary least squares regression.

## Appendix C: Methodology

The COVID Collaborative survey was conducted using the nationally representative Ipsos KnowledgePanel®, in which participants are randomly recruited via address-based sampling to participate in survey research projects by responding to questionnaires online. Households without internet connections are provided with a web-enabled device and free internet service.

The survey was designed to include approximately 1,000 Black adults and 250 Latinx adults in the general population.

The survey questionnaire was pretested Aug. 27-30, 2020, and field work was conducted Sept. 1-15, 2020, in English and Spanish. After initial invitations, email reminders were sent to all non-responders on the third, fourth, seventh, eleventh and 13<sup>th</sup> days of the field period. Participants completed the survey in a median time of 15 minutes.

Quality control flagged respondents who completed the overall survey or Q15, Q16 and Q29 specifically in the top 2 percent fastest times, or who skipped more than one quarter of seen questions. Thirty-nine cases were removed from the dataset on these grounds (14 based on survey length; 11 based on question duration at Q15, Q16 and Q29; and 14 who skipped at least one quarter of the questions). The sample composition after quality control was 1,050 Black adults and 258 Latinx adults.

Active panel members were weighted to benchmarks from the U.S. Census Bureau's March 2019 Current Population Survey for computation of size:

- Gender (male, female)
- Age (18-29, 30-44, 45-59, 60+)
- Race/ethnicity (white, Black, other, Hispanic, 2+ races)
- Education (less than high school, high school, some college, bachelor's or higher)
- Census region (Northeast, Midwest, South, West)
- Household income (less than \$10,000, \$10,000-\$24,999, \$25,000-\$49,999, \$50,000-\$74,999, \$75,000-\$99,999, \$100,000-\$149,999, \$150,000+)
- Home ownership status (own, rent/other)
- Metropolitan area (yes, no)

Data from Black respondents were weighted via iterative proportional fitting to the following benchmark distributions from the U.S. Census Bureau's March 2019 Current Population Survey:

- Gender (male, female) by age (18-29, 30-44, 45-59, 60+)
- Census region (Northeast, Midwest, South, West)
- Metropolitan status (metro, non-metro)
- Education (less than high school, high school, some college, bachelor's or higher)
- Household income (less than \$25,000, \$25,000-\$49,999, \$50,000-\$74,999, \$75,000-\$99,999, \$100,000-\$149,999, \$150,000+)

- Marital status (married, not married)

Data from Latinx respondents were weighted via iterative proportional fitting to the following benchmark distributions from the U.S. Census Bureau's March 2019 Current Population Survey and the 2018 American Community Survey:

- Gender (male, female) by age (18-29, 30-44, 45-59, 60+)
- Census region (Northeast, Midwest, South, West)
- Metropolitan status (metro, non-metro)
- Education (less than high school, high school, some college, bachelor's or higher)
- Household income (less than \$25,000, \$25,000-\$49,999, \$50,000-\$74,999, \$75,000-\$99,999, \$100,000-\$149,999, \$150,000+)
- Marital status (married, not married)
- Language proficiency (English proficient Hispanic, bilingual Hispanic, Spanish proficient Hispanic)
- Hispanic nativity (U.S.-born Hispanic, not U.S.-born Hispanic)

Weights were not trimmed. The survey has margins of sampling error of plus or minus 3.5 percentage points for the Black adult sample and 6.7 points for Latinx adults. Error margins are larger for subgroups.

## Appendix D: Literature review

A wealth of peer-reviewed academic literature establishes prominent disparities in vaccine uptake in the United States:

- Minorities in the U.S. are vaccinated for the flu at rates between 15-18 percentage points lower than whites (Uscher-Pines et al. 2011).
- Among adults 65 and older, the gap between Blacks and whites persists after controlling for access, healthcare use and socioeconomic status (Lindley et al. 2006).
- White, suburban, college-educated women of middle- and upper-incomes dominate the anti-vaccine movement (Lubrano 2019), and women account for the vast majority of those liking, sharing and commenting on anti-vaccination content on Facebook (Smith and Graham 2017).
- Libertarianism is another important source of anti-vaccine attitudes, particularly for those resistant to the government telling them what to do (Hoffman 2019).

Broadly, trust matters for uptake rates, and misinformation spread by the anti-vaccine movement has damaged public trust in vaccine safety and efficacy (Barbacariu 2014; Cooper et al. 2008).

- The entities of the immunization enterprise—academia, government, industry and health providers—are susceptible to public mistrust. Dissemination of information that erodes that trust is rapid, organized and pervasive, while the pro-vaccine community has done little to research and understand ways to rebuild and sustain trust (Larson et al. 2011).
- Highlighting the impact of this decline, lack of trust between new mothers and their infants' pediatricians were pivotal in decisions not to immunize their children (Benin et al. 2006).
- Eroding public trust is reflected in rising refusal rates of state-mandated vaccines in many states (Cooper et al. 2008). More than three in 10 pediatricians in Connecticut reported dismissing families because of parents' refusal to immunize their children (Leib et al. 2011).
- Declining trust is also partisan in nature. Democrats are most likely to trust scientists on vaccines, while Tea Party supporters are least likely (Hamilton et al. 2015).
- One cause is that on social media, misinformation and negative experiences spread widely because these costs are tangible while benefits are intangible (Betsch et al. 2012; Kata 2011).
- Traditional media also play a role, with financial incentive to highlight controversy and aims for balanced coverage, giving equal time to non-scientific, outlier views (Cooper et al. 2008).

Disparities between whites and racial and ethnic minorities are driven by several factors:

- Focus groups and small-n clinical studies find that Blacks are more likely than whites to doubt vaccine safety/efficacy, made worse by distrust of the healthcare system (but not distrust of their doctors). And among older Blacks, fear of getting the flu from vaccination is widespread (Scarinci et al. 2007; Wray et al. 2007; Wray et al. 2009).
- Holding the belief that vaccines are safe and effective diminishes (Bynum et al. 2011) or erases (Wooten et al. 2012) vaccination gaps between Black and white Americans.

- Minorities face greater barriers to healthcare than whites (Uscher-Pines et al. 2011), but this accounts for less than 2 percent of the disparity. More problematic are missed opportunities for vaccination among those who do have access to routine medical care (Hebert et al. 2005).
- Among adolescents, provider recommendation is a key factor in HPV vaccine uptake, and minorities are less likely to receive those recommendations (Jeudin et al. 2014).
- Among Hispanics, distrust of vaccines does not play a role in lower uptake (Hebert et al. 2005), but knowledge about the flu is a significant positive predictor of vaccination, suggesting that improved health literacy may increase vaccine uptake (Cohen et al. 2010).

Looking specifically to research that employs statistical modeling of racial disparities in flu vaccination, several predictors emerge:

- A. In a study of Californians, Blacks were less likely than whites to be vaccinated. Hispanics were no different from whites when controlling for socioeconomic status and access to health care (Almario et al. 2016).
- Other positive predictors included the presence of a chronic condition, having a graduate degree, health insurance coverage, having a regular source of care, having seen a physician in the past year, age and being married.
  - Other negative predictors included being male, smoking, being employed and living in a rural area.
  - Self-reported health status and income were not significant predictors.
- B. In a second study, those who use Twitter and Facebook as sources of health information are more likely to be vaccinated than those who do not (Ahmed et al. 2018). Among results that may guide our work:
- Other positive predictors included increased knowledge about the flu, measured as the number of questions answered correctly in a seven-question battery (see below); health insurance coverage; and age.
  - Race was not a significant predictor, nor were income, sex or education.

Flu knowledge battery (true or false)

1. The flu vaccine helps stimulate a natural immune response?
2. A flu vaccine will protect you from the flu for many years?
3. The flu vaccine does not include all the types of flu circulating in the US this year?
4. Flu vaccines must be tested and approved every year?
5. Flu vaccines change every year because the type of flu virus change all the time?
6. Even if the flu vaccine does not contain all types of virus going around it can still help reduce the seriousness and length of time I am sick if I get the flu?
7. The flu vaccine this year is less effective than most years?

- C. A third study compared vaccine trust among whites and Blacks by looking to differences in measures of trust and several psychosocial variables (Freimuth et al. 2017).
- First, comparing Blacks and whites across thirteen measures of trust, Blacks had significantly lower levels of trust across all but one: trust in government.

- Then, modeling trust in the flu vaccine among blacks, several findings emerge:
  - Higher generalized trust (“Generally speaking, how much do you trust most people?”) predicts higher trust in the flu vaccine.
  - Blacks with higher household incomes, who perceived a higher social position, who perceived higher racial fairness and those with lower perceived racial consciousness also had higher levels of generalized trust.
  - Several psychosocial variables also predict trust in the flu vaccine among Blacks. All are significant for Blacks except general importance of vaccines and subjective norms (that is, the perceived social pressure to engage in a behavior). For whites, all psychosocial variables are significant.
  - Modeling trust in the flu vaccine among Blacks, the R-squared is .17 with demographics and trust variables. With psychosocial variables, it rises sharply, to 0.64.

D. A fourth study models Black Americans’ frequency of flu vaccine uptake over the previous five years (Quinn et al. 2018).

- Significant predictors include “better self-reported vaccine knowledge, more positive vaccine attitudes, more trust in the flu vaccine and the vaccine process, higher perceived disease risk, lower perceived risk of vaccine side effects, higher subjective norms (perception that people close to them wanted them to be vaccinated), a higher moral norm (perceived obligation to get vaccinated), lower general vaccine hesitancy, higher confidence in the flu vaccine and their confidence in vaccine decision and lower perceived barrier”.

E. In studies of attitudes during the H1N1 pandemic, other predictors emerge in addition to the considerations already identified by the studies above:

- For H1N1 vaccine uptake, additional positive predictors included how closely the respondent followed news about H1N1 and the number of cases of H1N1 in the respondent’s area (Freimuth et al. 2013).
- For willingness to take an antiviral drug as treatment for H1N1 while the drug was under emergency use authorization, doctor recommendation positively predicted willingness to take the treatment, while describing the drug as “experimental” made respondents less willing to take it (Freimuth et al. 2013).

Efforts to increase vaccination uptake among minorities are successful to varying degrees:

- During H1N1, strategies to increase vaccine uptake among minorities included making the vaccine free of charge, vaccination sites in schools and retail stores, engagement of faith-based organizations and communication in multiple languages through minority-targeted media. Whites and Hispanics had similar H1N1 vaccination rates, but Blacks were still less likely to get vaccinated than whites, 14 vs. 20 percent.
- While Black patients are more likely to distrust the healthcare system, most trust their own doctor. Research suggests that vaccination rates would improve if doctors took the time to discuss patient concerns about vaccine safety and efficacy (Wray 2007).

- Indeed, for Black Americans, exposure to vaccine safety messages were effective in changing beliefs (Wray 2009).

Other interventions increased vaccine uptake among other groups and Americans more broadly:

- Text messaging campaigns, immunization campaign websites, patient-held web-based portals and computerized reminders increase immunization coverage rates (Odone et al. 2015).
- The most effective campaigns to increase vaccine uptake among healthcare workers are those that use multiple strategies, such as encouragement by a clinic director, a dedicated on-site vaccination nurse, posters and leaflets in clinics and paycheck notices (Rashid et al. 2016).
- Vaccine uptake among healthcare workers also increases when programs highlight personal vaccination benefits, emphasize the impact of their own non-vaccination on others and address vaccine-related knowledge gaps (Prematunge et al. 2014).

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