

US adults' preferences for race-based and place-based prioritisation for COVID-19 vaccines

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ABSTRACT

Implementing equity principles in resource allocation is challenging. In one approach, some US states implemented race-based prioritisation of COVID-19 vaccines in response to vast racial inequities in COVID-19 outcomes, while others used place-based allocation. In a nationally representative survey of n=2067 US residents, fielded in mid-April 2021 (before the entire US population became eligible for vaccines), we explored the public acceptability of race-based prioritisation compared with place-based prioritisation, by offering vaccines to harder hit zip codes before residents of other zip codes. We found that in general, a majority of respondents supported the place-based approach, and a substantial proportion supported the race-based plan. Support was higher among Democrats compared with Republicans. All US residents became eligible for vaccines on 19 April 2021 but as of this writing, equitable uptake of vaccines remains urgent not only for first doses for adults but also for boosters and for children. Our findings also provide a benchmark for future pandemic planning that racial and social justice in vaccine allocation are salient considerations for the public. The findings may furthermore be of interest to policy makers designing vaccine allocation frameworks in countries with comparable health disparities across social, ethnic and racial groups, and more broadly, for those exploring ways of promoting equity in resource allocation outside of a pandemic setting.

INTRODUCTION

Communities of colour have been disproportionately affected by COVID-19 in the USA.^{1–4} As one way of addressing this inequity in vaccine allocation, some US states implemented race-based or ethnicity-based COVID-19 prioritisation. For instance, in winter/spring 2021, Montana enabled Native Americans and other people of colour (POC) to receive vaccines as of 19 January, while opening eligibility to the general population on 1 April.⁵ In Vermont, the health department expressly acknowledged that systemic and structural racism led to disproportionate impact of COVID-19 among POC,⁶ and offered vaccines to all residents who identified as black, indigenous or a person of colour on 8 April, opening general eligibility on 19 April.⁷

An alternative approach is based not on race/ethnicity, but geography,^{8,9} and assigns higher priority to residents of more disadvantaged neighbourhoods. This approach can address racial justice alongside social justice, as systematic racism curtails, among other things, economic mobility and access to healthcare,^{10–13} and more disadvantaged areas therefore comprise disproportionate shares of

POC.¹⁴ In the USA, a comprehensive framework for equitable vaccine allocation was issued by the National Academies of Science, Engineering and Medicine (NASEM).⁸ This framework explicitly acknowledges the need to respond to the pandemic's disparate impact on communities of colour. In an unprecedented turn, NASEM combined a traditional phased rollout *across* priority groups with a novel recommendation to promote equity *within* each phase. Specifically, NASEM recommended that vaccine access should be prioritised within phases by using a disadvantage measure such as the Centers for Disease Control and Prevention's (CDC's) Social Vulnerability Index (SVI). An index such as SVI is a statistical measure of a geographical area's average vulnerability, based on the relative advantage or disadvantage of its residents, captured along dimensions including income, educational attainment and housing quality.^{15–18} Noting that the SVI's variables correspond to populations of colour who have had a disproportionate impact of COVID-19, NASEM recommended setting aside 10% of federal vaccine supply for the most disadvantaged SVI quartiles, to be added to allocations proportionate to population. NASEM further urged planners to undertake special efforts to reach high-vulnerability residents, defined as people living within the most disadvantaged SVI quartiles within the state.⁸ Before opening eligibility to the general population, the majority of US states (n=34) used disadvantage indices.^{8,9} Such states could be considered to have not only adopted a strategy to address current public health needs equitably (as more disadvantaged people are more likely to get and spread COVID-19, and die from it)⁴ but also to be making allocation decisions with the normative goals of restorative justice (by recognising the role of historic and ongoing injustice in COVID-19's disparate impact).^{9,19} Whether programme planners transparently communicated such frameworks notwithstanding, vaccine allocation in the USA is a context in which equity has been implemented both explicitly and implicitly.

However, little is known about the US public's support for such allocation plans. Our objective was to assess the public acceptability of race-based and place-based vaccine prioritisation at the time when the USA was about to open eligibility for vaccines for all residents. Both to be better prepared for the next pandemic and to assess which of the novel equity-promoting approaches that were adopted during COVID-19 might be applicable to other areas of health policy, it is imperative to systematically collate the lessons that can be learnt. While these data are highly specific to the US setting, the analysis could also be indirectly relevant to policy

makers in other countries, that, due to unacceptable global disparities in vaccine access, are in earlier stages of allocation and face within-country inequities.

METHODS

Data were collected using a representative sample of US adults participating in an omnibus online poll (The Harris Poll) among US residents 18 years and older, from 8–12 April 2021. The sample is a non-probability sample. To ensure representativeness of findings, Harris applies two processes. First, they use purposive sampling and weights, to align the sample with the US General Population for ages 18+, based on the Current Population Survey from the Census (by education, age, gender, race/ethnicity, region, household income, household size and marital status). Second, propensity scoring is applied to adjust for attitudinal and behavioural differences between respondents who are more likely to participate in online surveys (vs those who are less likely), those who are more likely to join online panels (vs those more reluctant) and those who responded to the survey that was fielded (vs those who did not). To minimise non-response bias, survey invitations provide only basic links and information that is non-leading. Due to the way the sample is constructed and maintained, response rates that would routinely be reported for probability samples cannot meaningfully be stated, and in line with

American Association for Public Opinion Research (AAPOR) we therefore report the completion rate (completed surveys divided by number of respondents who entered the survey).²⁰ Online supplemental table S1 shows weighted (including propensity scores) and unweighted characteristics of all respondents.

Each participant was randomly assigned to a description of either the race-based or place-based prioritisation plan (see wording in figure 1) and asked to indicate their approval on a 5-point Likert scale (strongly oppose to strongly support). Respondent demographics in both samples were comparable (online supplemental table S1). Measures of overall support and opposition were created by collapsing responses of (*strongly support* and *support*) and (*strongly oppose* + *oppose*). Data were analysed using SPSS V.26 and weights provided by Harris Insights and Analytics were applied to generate nationally representative estimates. The study was determined exempt by the University of Pennsylvania Institutional Review Board.

RESULTS

The survey was fielded from 8–12 April 2021. The survey completion rate was 62%. Of the total participants (n=2067), 1002 responded to the race-based vaccine prioritisation plan (men (48%); mean (SD) age, 48.20 (18.34) years) and 1065

“As states are preparing to open eligibility for Covid-19 vaccines for everyone, some states are offering vaccines to....

...Black, Indigenous and Hispanic populations before the general population because these groups have been hit harder by Covid-19”

...people living in zip codes that have been hit harder by Covid-19 before residents of other zip codes.”

How much do you support or oppose this plan?”

[5 point Likert scale, range “Strongly oppose” to “Strongly support”]

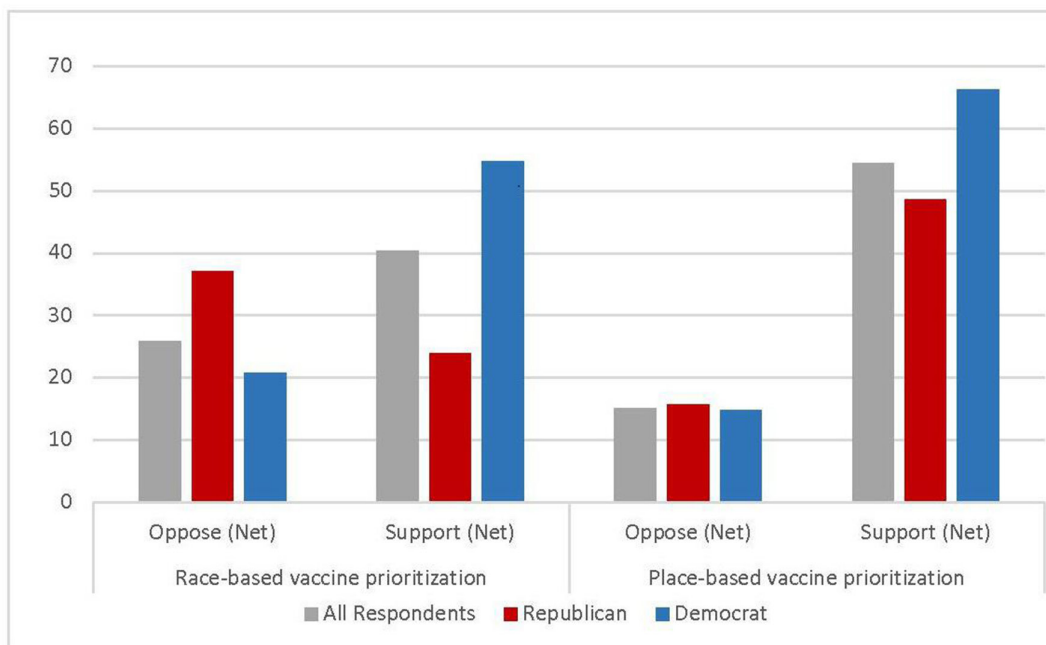


Figure 1 Support for race-based and place-based COVID-19 vaccine prioritisation across all respondents and by partisan identity (%). Note: The grey bars show overall (net) support and opposition to race-based and place-based vaccine allocation plans for all respondents. Red and blue bars show the percentages of support or opposition among respondents identifying as Republicans or Democrats. (Figure created by the authors.)

Table 1 (Created by the authors): Overall (net) support and opposition for race-based and place-based COVID-19 vaccine prioritisation

Sample No. (%)	Race-based prioritisation (n=1002)				Place-based prioritisation (n=1065)			
	Oppose (net)	Neither oppose nor support	Support (net)	χ^2 (p)	Oppose (net)	Neither oppose nor support	Support (net)	χ^2 (p)
Overall	259 (25.9)	338 (33.8)	404 (40.3)		160 (15)	324 (30.5)	581 (54.5)	
Race/ethnicity								
White (not Hispanic)	169 (26.8)	212 (33.8)	249 (39)	19.24 (0.01)	98 (15)	194 (29.7)	362 (55.4)	7.7 (0.46)
Hispanic	29 (21.5)	40 (29.4)	66 (48.9)		24 (12.2)	56 (28.7)	116 (59.2)	
Black	26 (20)	48 (36.9)	56 (43.1)		18 (16.2)	42 (37.8)	51 (46)	
Asian	23 (37.1)	15 (24.2)	24 (38.7)		12 (17.6)	20 (29)	36 (52.9)	
All others	12 (26.7)	23 (50)	10 (22.2)		7 (19.4)	13 (36.1)	16 (44.4)	
Partisanship								
Republican	101 (37.1)	106 (39)	65 (23.9)	74.01 (<0.001)	49 (15.6)	113 (35.8)	153 (48.6)	40 (0.001)
Democrat	81 (20.8)	95 (24.4)	213 (54.8)		55 (14.7)	71 (19)	248 (66.3)	
All others	77 (22.6)	137 (40.2)	127 (37.2)		55 (14.6)	141 (37.5)	180 (47.9)	
Gender								
Male	142 (29.5)	143 (29.9)	196 (40.7)	9.85 (0.04)	75 (15.3)	137 (27.8)	279 (56.8)	7.47 (0.11)
Female	115 (22.5)	192 (37.6)	203 (39.8)		82 (14.8)	177 (31.8)	296 (53.3)	
Other	3 (25)	3 (27.3)	6 (50)		2 (11.1)	10 (55.6)	6 (33.3)	
Education								
Less than HS degree	19 (19.6)	41 (42.3)	37 (38.1)	25.38 (<0.01)	20 (19.2)	40 (38.1)	44 (42.3)	30.42 (<0.001)
HS degree to less than 4-year college degree	149 (26.8)	207 (37.2)	200 (36)		81 (14)	205 (35.5)	293 (50.6)	
College degree (4 years or more)	92 (26.3)	91 (26.1)	167 (47.7)		59 (15.4)	80 (20.9)	244 (63.7)	
Income								
Less than \$50 000	60 (20.4)	110 (37.4)	124 (42.2)	55.51 (<0.001)	39 (13.2)	101 (34.2)	155 (52.5)	21.02 (<0.01)
\$50 000–\$74 999	46 (27.5)	55 (33.1)	66 (39.5)		23 (14.0)	60 (36.6)	81 (49.4)	
\$75 000–\$99 999	37 (28.5)	41 (31.5)	52 (40)		23 (16.8)	29 (21.2)	85 (62)	
More than \$100 000	112 (29.9)	108 (28.9)	154 (41.2)		70 (16.4)	114 (26.6)	244 (57)	
Employment								
Employed (full-time, part-time, self)	140 (27.1)	152 (29.5)	224 (43.4)	9.03 (0.01)	85 (14.5)	175 (29.9)	325 (55.6)	0.6 (0.74)
Other	120 (24.7)	186 (38.4)	179 (36.9)		75 (15.6)	150 (31.2)	256 (53.2)	
Age (years)								
18–29	41 (22.3)	66 (35.9)	77 (41.8)	2.41 (0.71)	37 (17.1)	80 (36.9)	100 (46.1)	9.08 (0.05)
30–59	138 (27.4)	163 (42.3)	202 (40.2)		81 (15.5)	149 (28.5)	293 (56)	
≥60	80 (25.5)	109 (34.7)	125 (39.8)		42 (12.9)	95 (29.2)	188 (57.8)	

HS, high school.

responded to the place-based plan (men (46.1%); mean (SD) age, 47.5 (18.20) years, see online supplemental table S1).

Overall, race-based prioritisation was supported by 40.3% of respondents (95% CI 37.3% to 43.4%) and place-based prioritisation by 54.5% (95% CI 51.6% to 57.5%). Although there were some significant differences in support for these plans based on respondent demographics (with, for instance, people with more education more likely to support both plans than those with less education, see table 1), the most substantive differences were by partisanship. Among respondents identifying as Democrats, 54.8% supported the race-based approach, compared with 23.9% of Republicans ($\chi^2=74.01$; $p<0.001$). Similarly, more Democrats (66.3%) than Republicans (48.6%, $\chi^2=40.00$; $p<0.001$) supported place-based allocation (table 1, figure 1, online supplemental table S2).

IMPLICATIONS AND LIMITATIONS

While our results necessarily speak most directly to a particular time and context (in April 2021) when the study was fielded, our findings—in combination with other work—suggest robust

support for equity in vaccine allocation. Specifically, our findings comport with and render more concrete earlier findings from two surveys fielded in September 2020 when vaccines were not yet available, but their effectiveness from clinical trials was already known. These surveys found that after being informed that POC are at ‘much higher risk of getting sick with and dying from COVID-19’, a majority of respondents agreed that these groups should have access to vaccines ‘before lower-risk groups’.²¹ Our study demonstrates that at a point in time when the majority of the population had seen other population groups receive vaccines for 4 months prior, and when prioritisation was not framed in terms of health risks, but in equity terms (ie, we highlighted that groups had been ‘hit harder’), NASEM’s emphasis to consider social and racial justice meets with robust support.

There are some limitations to consider, however. Our sample size precludes investigations of attitudes within other groups, such as regional differences. However, we encourage future research to investigate the many dimensions of public attitudes that might relate to attitudes about equity, including region of

residence. Further, while our study is necessarily relevant to the US context, questions of inequities within and across groups also arise elsewhere. For more than a decade, the annual report of the UN Development Programme has used a global multidimensional disadvantage index, and as indicated in the subtitle of its recent 2021 report ‘Unmasking disparities by ethnicity, caste and gender’ many states frequently also have to consider health-care disparities across historically and otherwise marginalised communities. The question of how to frame different ways of addressing such disparities is hence not limited to the USA, but also arises elsewhere.¹²

CONCLUSION

We found that a majority of Americans support place-based prioritisation strategies, and a substantial number also support explicit race-based allocation—with a quarter or fewer opposing either approach. The partisan divide in support and opposition, with larger shares of Republicans opposed to race-based prioritisation, indicates both the need to consider such options carefully in a polarised political situation, but also that politicians and policy makers seeking to promote racial and social equity can build on considerable public support when it comes to the use of place-based disadvantage indices, that can help implement meaningful elements of restorative justice,^{8,9,19} as less-advantaged racial and ethnic groups more frequently reside in areas that have been systematically divested of resources.^{13,14} In policy terms, we have provided evidence that a place-based approach is likely to meet with less partisan opposition and overall, higher public support. These findings matter for prioritisation efforts currently, including targeted outreach and dispensing site planning for boosters and the vaccination of children, allocation of free COVID-19 tests, as well as for longer term lessons learnt, and future pandemic preparedness planning.

Contributors HS and SJS had the idea for the study and jointly designed the initial instrument, revised substantially after further input from SG. SJS led all data analyses, with assistance from ES and guidance from SG. HS wrote the first draft of the manuscript and led all subsequent revisions; all authors critically reviewed and revised the manuscript.

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Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval The study was determined exempt by the University of Pennsylvania Institutional Review Board. Participants gave informed consent to participate in the study before taking part.

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Appendix**US adults' preferences for race-based and place-based prioritization for Covid-19 vaccines**

[author details removed for review]

Table S1. Respondent demographic information

Table S2. Support and opposition for race- and place-based Covid-19 vaccine prioritization plans (original survey response categories)

Table S1. Respondent demographic information

<i>Sample No. (%)</i>	<i>Race-based prioritization</i>		<i>Place-based prioritization</i>	
	<i>Unweighted</i>	<i>Weighted</i>	<i>Unweighted</i>	<i>Weighted</i>
Race				
<i>White (Not Hispanic)</i>	773 (74.7)	630 (62.9)	764 (74)	654 (61.4)
<i>Hispanic</i>	74 (7.1)	135 (13.5)	99 (9.6)	196 (18.4)
<i>Black</i>	106 (10.2)	130 (13)	80 (7.8)	111 (10.4)
<i>Asian</i>	40 (3.9)	62 (6.2)	48 (4.7)	68 (6.4)
<i>All Others</i>	42 (4.1)	42 (4.5)	41 (4.0)	36 (3.4)
Gender				
<i>Male</i>	480 (46.4)	481 (48)	455 (44.1)	491 (46.1)
<i>Female</i>	541 (52.3)	510 (50.8)	560 (54.3)	555 (52.2)
<i>Others</i>	14 (1.4)	12 (1.2)	17 (1.6)	18 (1.7)
Partisan Identity				
<i>Republican</i>	305 (29.5)	272 (27.1)	327 (31.7)	315 (29.6)
<i>Democrats</i>	388 (37.5)	389 (38.8)	243 (356)	374 (35.1)
<i>All Others</i>	342 (33)	341 (34)	180 (349)	376 (35.3)
Education				
<i>Less than HS degree</i>	60 (5.8)	97 (9.7)	55 (5.3)	104 (9.8)
<i>HS degree to less than 4-year college degree</i>	509 (49.2)	556 (55.4)	500 (48.4)	579 (54.3)
<i>College degree (4 years or more)</i>	466 (45)	350 (34.9)	477 (46.2)	383 (35.9)
Income				
<i>Less than \$50,000</i>	387 (37.4)	294 (29.3)	378 (36.3)	295 (27.7)
<i>\$50,000-\$74,999</i>	211 (20.4)	167 (16.7)	198 (19.2)	164 (15.4)
<i>\$75,000-\$99,999</i>	155 (15)	130 (13)	137 (13.3)	137 (12.9)
<i>More than \$100,000</i>	246 (23.8)	374 (37.3)	278 (26.9)	428 (40.2)
Employment				
<i>Employed (full-time, part-time, self)</i>	536 (51.8)	516 (51.5)	548 (53.1)	585 (54.9)
<i>Other (retired, student, homemaker, etc.)</i>	499 (48.2)	485 (48.5)	484 (46.9)	481 (45.1)
Age				
<i>18-29 years</i>	162 (15.7)	184 (18.4)	182 (17.6)	217 (20.4)
<i>30-59 years</i>	516 (49.9)	503 (50.2)	492 (47.7)	523 (49.1)
<i>60>-</i>	357 (34.5)	314 (31.4)	358 (34.7)	325 (30.5)

Table S2. Support and opposition for race- and place-based Covid-19 vaccine prioritization plans (original survey response categories)

Sample No. (%)	Race-based prioritization (n=1,002)						Place-based prioritization (n=1,065)					
	Strongly Oppose	Oppose	Neither Oppose nor Support	Support	Strongly Support	χ^2 (p)	Strongly Oppose	Oppose	Neither Oppose nor Support	Support	Strongly Support	χ^2 (p)
	156 (15.6)	103 (10.3)	338 (33.8)	223 (22.2)	181 (18.1)		95 (8.92)	65 (6.10)	324 (30.5)	321 (30.42)	260 (24.4)	
Race/Ethnicity												
White (Not Hispanic)	100 (15.9)	68 (10.8)	212 (33.8)	141 (22.5)	107 (17)	30.31 (0.01)	55 (8.4)	43 (6.6)	194 (29.7)	207 (31.7)	155 (23.7)	21.61 (0.15)
Hispanic	20 (14.7)	10 (7.4)	40 (29.4)	30 (22.1)	36 (26.5)		20 (10.3)	4 (2.1)	56 (28.7)	59 (30.3)	56 (28.7)	
Black	19 (14.6)	7 (5.4)	48 (36.9)	28 (21.5)	28 (21.5)		9 (8.1)	9 (8.1)	42 (37.8)	25 (22.5)	26 (23.4)	
Asian	10 (16.1)	13 (21)	15 (24.2)	15 (24.2)	9 (14.5)		9 (13)	3 (4.3)	20 (29)	19 (27.5)	18 (26.1)	
All Others	8 (17.4)	5 (10.9)	23 (50)	8 (17.4)	2 (4.3)		2 (5.6)	5 (13.9)	13 (36.1)	11 (30.6)	5 (13.9)	
Partisanship												
Republican	59 (21.7)	43 (15.8)	106 (39)	45 (16.5)	19 (7)	83.88 (<0.001)	27 (8.5)	23 (7.3)	113 (35.8)	94 (29.7)	59 (18.7)	46.7 (<0.001)
Democrat	46 (11.8)	35 (9)	95 (24.4)	108 (27.8)	105 (27)		32 (8.6)	23 (6.1)	71 (19)	125 (33.4)	123 (32.9)	
All Others	52 (15.3)	25 (7.4)	137 (40.3)	69 (20.3)	57 (16.8)		36 (9.6)	19 (5.1)	141 (37.5)	102 (27.1)	78 (20.7)	
Gender												
Male	87 (18.2)	54 (11.3)	143 (29.9)	112 (23.4)	83 (17.3)	12.99 (0.11)	46 (9.3)	30 (6.1)	137 (27.8)	160 (32.5)	119 (24.2)	11.14 (0.19)
Female	67 (13.1)	48 (9.4)	192 (37.6)	109 (21.4)	94 (18.4)		49 (8.8)	33 (5.9)	177 (31.8)	160 (28.8)	137 (24.6)	
Others	2 (18.2)	1 (9.1)	3 (27.3)	1 (9.1)	4 (36.4)		0	2 (11.1)	10 (55.6)	2 (11.1)	4 (22.2)	
Education												
Less than HS degree	16 (16.5)	3 (3.1)	41 (42.3)	14 (14.4)	23 (23.7)	30.68 (<0.001)	8 (7.6)	13 (12.4)	40 (38.1)	29 (27.6)	15 (14.3)	38.79 (<0.001)
HS degree to less than 4-year college degree	84 (15.1)	65 (11.7)	207 (37.2)	107 (19.2)	93 (16.7)		51 (8.8)	29 (5)	205 (35.5)	158 (27.3)	135 (23.4)	
College degree (4 years or more)	57 (16.3)	35 (10)	91 (26.1)	101 (28.9)	65 (18.6)		36 (9.4)	23 (6)	80 (20.9)	134 (35)	110 (28.7)	
Income												

	<i>Less than \$50,000</i>	40 (13.6)	20 (6.8)	110 (37.4)	61 (20.7)	63 (21.4)	55.51 (<0.001)	20 (6.8)	19 (6.4)	101 (34.2)	95 (32.2)	60 (20.3)	31.2 (0.01)
	<i>\$50,000-\$74,999</i>	27 (16.3)	18 (10.8)	55 (33.1)	24 (26.2)	42 (25.3)		16 (9.8)	7 (4.3)	60 (36.6)	41 (25)	40 (24.4)	
	<i>\$75,000-\$99,999</i>	15 (11.5)	22 (16.9)	41 (31.5)	34 (15.3)	18 (13.8)		12 (8.8)	11 (8)	29 (21.2)	53 (38.7)	32 (23.4)	
	<i>More than \$100,000</i>	72 (19.3)	40 (10.7)	108 (28.9)	101 (27)	53 (14.2)		44 (10.3)	26 (6.1)	114 (26.6)	125 (29.2)	119 (27.8)	
Employment													
	<i>Employed (full-time, part-time, self)</i>	79 (15.3)	61 (11.8)	152 (29.5)	121 (23.4)	103 (20)	11.19 (0.24)	57 (9.7)	28 (4.8)	175 (29.9)	181 (30.9)	145 (24.7)	5.11 (0.27)
	<i>Other (retired, student, homemaker, etc.)</i>	77 (15.9)	42 (8.7)	186 (38.4)	101 (20.9)	78 (16.1)		38 (7.9)	37 (7.7)	150 (31.2)	141 (29.3)	115 (23.9)	
Age													
	<i>18-29 years</i>	24 (13)	17 (9.2)	66 (35.9)	33 (17.9)	44 (23.9)	10.85 (0.21)	24 (11.3)	13 (6)	80 (36.9)	59 (27.2)	41 (18.9)	15.64 (0.04)
	<i>30-59 years</i>	88 (17.5)	50 (9.9)	163 (42.3)	113 (22.5)	89 (17.7)		53 (10.1)	28 (5.4)	149 (28.5)	162 (31)	131 (25)	
	<i>60></i>	44 (14)	36 (11.5)	109 (34.7)	77 (24.5)	48 (15.3)		18 (5.5)	24 (7.4)	95 (29.2)	31.1	87 (26.8)	

Appendix

US adults' preferences for race-based and place-based prioritization for Covid-19 vaccines

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Table S1. Respondent demographic information

Table S2. Support and opposition for race- and place-based Covid-19 vaccine prioritization plans (original survey response categories)

Table S1. Respondent demographic information

<i>Sample No. (%)</i>		<i>Race-based prioritization</i>		<i>Place-based prioritization</i>	
		<i>Unweighted</i>	<i>Weighted</i>	<i>Unweighted</i>	<i>Weighted</i>
Race					
	<i>White (Not Hispanic)</i>	773 (74.7)	630 (62.9)	764 (74)	654 (61.4)
	<i>Hispanic</i>	74 (7.1)	135 (13.5)	99 (9.6)	196 (18.4)
	<i>Black</i>	106 (10.2)	130 (13)	80 (7.8)	111 (10.4)
	<i>Asian</i>	40 (3.9)	62 (6.2)	48 (4.7)	68 (6.4)
	<i>All Others</i>	42 (4.1)	42 (4.5)	41 (4.0)	36 (3.4)
Gender					
	<i>Male</i>	480 (46.4)	481 (48)	455 (44.1)	491 (46.1)
	<i>Female</i>	541 (52.3)	510 (50.8)	560 (54.3)	555 (52.2)
	<i>Others</i>	14 (1.4)	12 (1.2)	17 (1.6)	18 (1.7)
Partisan Identity					
	<i>Republican</i>	305 (29.5)	272 (27.1)	327 (31.7)	315 (29.6)
	<i>Democrats</i>	388 (37.5)	389 (38.8)	243 (356)	374 (35.1)
	<i>All Others</i>	342 (33)	341 (34)	180 (349)	376 (35.3)
Education					
	<i>Less than HS degree</i>	60 (5.8)	97 (9.7)	55 (5.3)	104 (9.8)
	<i>HS degree to less than 4-year college degree</i>	509 (49.2)	556 (55.4)	500 (48.4)	579 (54.3)
	<i>College degree (4 years or more)</i>	466 (45)	350 (34.9)	477 (46.2)	383 (35.9)
Income					
	<i>Less than \$50,000</i>	387 (37.4)	294 (29.3)	378 (36.3)	295 (27.7)
	<i>\$50,000-\$74,999</i>	211 (20.4)	167 (16.7)	198 (19.2)	164 (15.4)
	<i>\$75,000-\$99,999</i>	155 (15)	130 (13)	137 (13.3)	137 (12.9)
	<i>More than \$100,000</i>	246 (23.8)	374 (37.3)	278 (26.9)	428 (40.2)
Employment					
	<i>Employed (full-time, part-time, self)</i>	536 (51.8)	516 (51.5)	548 (53.1)	585 (54.9)
	<i>Other (retired, student, homemaker, etc.)</i>	499 (48.2)	485 (48.5)	484 (46.9)	481 (45.1)
Age					
	<i>18-29 years</i>	162 (15.7)	184 (18.4)	182 (17.6)	217 (20.4)
	<i>30-59 years</i>	516 (49.9)	503 (50.2)	492 (47.7)	523 (49.1)
	<i>60></i>	357 (34.5)	314 (31.4)	358 (34.7)	325 (30.5)

Table S2. Support and opposition for race- and place-based Covid-19 vaccine prioritization plans (original survey response categories)

Sample No. (%)	Race-based prioritization (n=1,002)						Place-based prioritization (n=1,065)					
	Strongly Oppose	Oppose	Neither Oppose nor Support	Support	Strongly Support	χ^2 (p)	Strongly Oppose	Oppose	Neither Oppose nor Support	Support	Strongly Support	χ^2 (p)
	156 (15.6)	103 (10.3)	338 (33.8)	223 (22.2)	181 (18.1)		95 (8.92)	65 (6.10)	324 (30.5)	321 (30.42)	260 (24.4)	
Race/Ethnicity												
White (Not Hispanic)	100 (15.9)	68 (10.8)	212 (33.8)	141 (22.5)	107 (17)	30.31 (0.01)	55 (8.4)	43 (6.6)	194 (29.7)	207 (31.7)	155 (23.7)	21.61 (0.15)
Hispanic	20 (14.7)	10 (7.4)	40 (29.4)	30 (22.1)	36 (26.5)		20 (10.3)	4 (2.1)	56 (28.7)	59 (30.3)	56 (28.7)	
Black	19 (14.6)	7 (5.4)	48 (36.9)	28 (21.5)	28 (21.5)		9 (8.1)	9 (8.1)	42 (37.8)	25 (22.5)	26 (23.4)	
Asian	10 (16.1)	13 (21)	15 (24.2)	15 (24.2)	9 (14.5)		9 (13)	3 (4.3)	20 (29)	19 (27.5)	18 (26.1)	
All Others	8 (17.4)	5 (10.9)	23 (50)	8 (17.4)	2 (4.3)		2 (5.6)	5 (13.9)	13 (36.1)	11 (30.6)	5 (13.9)	
Partisanship												
Republican	59 (21.7)	43 (15.8)	106 (39)	45 (16.5)	19 (7)	83.88 (<0.001)	27 (8.5)	23 (7.3)	113 (35.8)	94 (29.7)	59 (18.7)	46.7 (<0.001)
Democrat	46 (11.8)	35 (9)	95 (24.4)	108 (27.8)	105 (27)		32 (8.6)	23 (6.1)	71 (19)	125 (33.4)	123 (32.9)	
All Others	52 (15.3)	25 (7.4)	137 (40.3)	69 (20.3)	57 (16.8)		36 (9.6)	19 (5.1)	141 (37.5)	102 (27.1)	78 (20.7)	
Gender												
Male	87 (18.2)	54 (11.3)	143 (29.9)	112 (23.4)	83 (17.3)	12.99 (0.11)	46 (9.3)	30 (6.1)	137 (27.8)	160 (32.5)	119 (24.2)	11.14 (0.19)
Female	67 (13.1)	48 (9.4)	192 (37.6)	109 (21.4)	94 (18.4)		49 (8.8)	33 (5.9)	177 (31.8)	160 (28.8)	137 (24.6)	
Others	2 (18.2)	1 (9.1)	3 (27.3)	1 (9.1)	4 (36.4)		0	2 (11.1)	10 (55.6)	2 (11.1)	4 (22.2)	
Education												
Less than HS degree	16 (16.5)	3 (3.1)	41 (42.3)	14 (14.4)	23 (23.7)	30.68 (<0.001)	8 (7.6)	13 (12.4)	40 (38.1)	29 (27.6)	15 (14.3)	38.79 (<0.001)
HS degree to less than 4-year college degree	84 (15.1)	65 (11.7)	207 (37.2)	107 (19.2)	93 (16.7)		51 (8.8)	29 (5)	205 (35.5)	158 (27.3)	135 (23.4)	
College degree (4 years or more)	57 (16.3)	35 (10)	91 (26.1)	101 (28.9)	65 (18.6)		36 (9.4)	23 (6)	80 (20.9)	134 (35)	110 (28.7)	
Income												
Less than \$50,000	40 (13.6)	20 (6.8)	110 (37.4)	61 (20.7)	63 (21.4)	55.51 (<0.001)	20 (6.8)	19 (6.4)	101 (34.2)	95 (32.2)	60 (20.3)	31.2 (0.01)
\$50,000-\$74,999	27 (16.3)	18 (10.8)	55 (33.1)	24 (26.2)	42 (25.3)		16 (9.8)	7 (4.3)	60 (36.6)	41 (25)	40 (24.4)	
\$75,000-\$99,999	15 (11.5)	22 (16.9)	41 (31.5)	34 (15.3)	18 (13.8)		12 (8.8)	11 (8)	29 (21.2)	53 (38.7)	32 (23.4)	

	<i>More than \$100,000</i>	72 (19.3)	40 (10.7)	108 (28.9)	101 (27)	53 (14.2)		44 (10.3)	26 (6.1)	114 (26.6)	125 (29.2)	119 (27.8)	
Employment													
	<i>Employed (full-time, part-time, self)</i>	79 (15.3)	61 (11.8)	152 (29.5)	121 (23.4)	103 (20)	11.19 (0.24)	57 (9.7)	28 (4.8)	175 (29.9)	181 (30.9)	145 (24.7)	5.11 (0.27)
	<i>Other (retired, student, homemaker, etc.)</i>	77 (15.9)	42 (8.7)	186 (38.4)	101 (20.9)	78 (16.1)		38 (7.9)	37 (7.7)	150 (31.2)	141 (29.3)	115 (23.9)	
Age													
	<i>18-29 years</i>	24 (13)	17 (9.2)	66 (35.9)	33 (17.9)	44 (23.9)	10.85 (0.21)	24 (11.3)	13 (6)	80 (36.9)	59 (27.2)	41 (18.9)	15.64 (0.04)
	<i>30-59 years</i>	88 (17.5)	50 (9.9)	163 (42.3)	113 (22.5)	89 (17.7)		53 (10.1)	28 (5.4)	149 (28.5)	162 (31)	131 (25)	
	<i>60></i>	44 (14)	36 (11.5)	109 (34.7)	77 (24.5)	48 (15.3)		18 (5.5)	24 (7.4)	95 (29.2)	31.1)	87 (26.8)	